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*Fred C.*  
**Gloeckner**  
*New York, N.Y.*  
**Chrysanthemum**  
**Manual**







## Changing Times in Chrysanthemum Production

The changes that have taken place in the growing of chrysanthemums can be compared to the changes taken place in the transportation field. The ox-cart and the airplane will both get you to your destination. The ox-cart is simple to operate but very slow, on the other hand the airplane is very fast and one must be well versed in its operation. Likewise, the new method of producing chrysanthemums is much faster and one must know all the latest developments in the cultural field.

The continuous flowering program will produce three crops a year provided the no pinch method is followed plus the proper manipulation of nutrient levels, temperature, moisture and length of day. If even one of these factors is not given proper consideration a poor crop of chrysanthemums is the result. Varieties play an important part in continuous flowering. This year we are offering the largest list of new varieties in the respective blooming periods. All of these varieties are the work of years of carefully planned breeding with specific qualities kept strictly in mind.

Continuous flowering has brought about a change in the classification of the varieties. Normally we classified them according to their natural flowering period. We are now classifying them according to their response to short day treatment. We have varieties that require 8 weeks from the start of the short day treatment to flowering such as Gold Coast and Reward also the 13 week response such as Christmas Star and Minstrel.

Our representatives are all well versed in the culture of chrysanthemums. They know the peculiarities of the various varieties and are capable and skilled in planning your requirements for the coming season.

It is a *Gloeckner* service to make available the latest cultural information on this crop.

Fred C.  
*Gloeckner*  
&  
Company,  
Incorporated

15 EAST 26th ST., NEW YORK 10, N. Y.

LExington 2-4197

At Madison Square

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### TERMS OF SALE

**Fifty rooted cuttings of each variety** is the **minimum** that can be supplied.

More than **50** of a variety must be in **multiples of 50**.

Any **changes** or **cancellations** of chrysanthemum orders must be received at least **30 days** before shipping date.

Every effort is being made to deliver stock which is free from stunt, but purchases must be made with the understanding that we assume no responsibility for losses which may result from stunt.





## Better Chrysanthemums

### CUTTINGS

To grow good chrysanthemums the first requisite is starting with Verticillium Wilt and Stunt free cuttings. Wilt free cuttings are easily secured. Now with the extreme care in selecting stunt free stock and the careful handling we are very optimistic in stating that stunt should be practically nil in the stock for the coming season.

#### Handling Cuttings

The cuttings you purchase are ready for potting or flatting. Many growers plant these rooted cuttings directly into the final location. Ordinarily they will not require shading, but if they have been several days in transit and have softened up some, or if they are planted during warm, bright weather shading with aster cloth or paper is advisable. Under no circumstances leave the covering on the plants during dull weather or at night. It is well to syringe the plants frequently until they stand up and are showing signs of growth.

#### Deliveries

With the advent of the time pinch and the precision method of culture it is necessary to have your cuttings arrive at a definite date. To insure proper delivery you must plan your cutting requirements months in advance of the date wanted. We would appreciate it if you could let us know your requirements so that our propagator could plan his growing of stock plants and cuttings more systematically.

#### Delays

With the reduced delivery schedule of the Railway Express Agency there may be delays in delivering your shipments. Chrysanthemum cuttings will be injured from cold as well as being too long in transit. If the cuttings are slightly wilted, they can be immersed in water for a short period and then planted. They will react perfectly to such treatment. If the cuttings have been slightly frozen, placing them in a cool room and thawing them out gradually, or placing them in a pail of cool water to take the frost out will bring them through so that they will do just as well as cuttings that have had nothing happen to them. Of course, if stock is badly frozen, or if long delays have occurred so that the cuttings are heated, yellow or rotted, a claim should be filed at once with the express company.

#### Air Freight

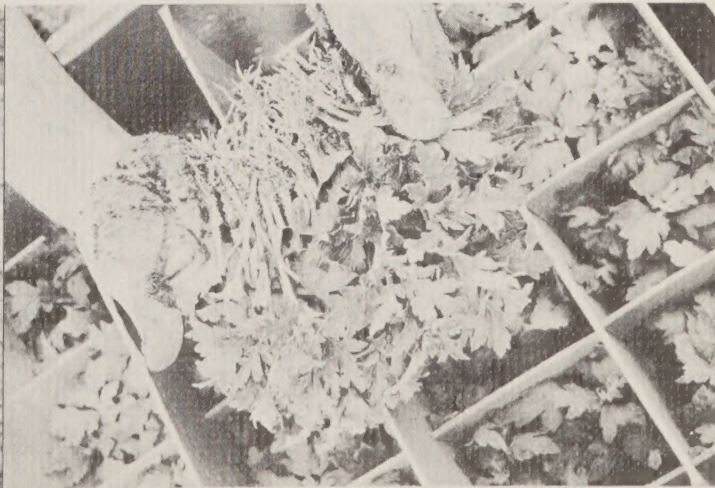
We have been very well satisfied with the use of Air Freight to deliver rooted cuttings this past season. Customers who are close to an airport are naturally served better than those who have to have their shipments reconsigned via Railway Express. If you are planning on using air freight it is well to have your telephone number appear on all shipping labels.

#### Premature Budding

Bud initiation can occur anytime during the spring months, whenever your temperatures in the greenhouses are consistently 60 degrees Fahrenheit or above, and the days are short enough to initiate bud setting. These conditions can occur anytime up until May 1st depending upon the variety and the locality in which they are being grown. Some varieties such as the garden varieties and early shading varieties require very little short day treatment, coupled with high temperatures to initiate buds. This same tendency to set bud readily is what makes these varieties desirable for early shading and garden work. In order to prevent this premature setting of buds, these same varieties should be placed where they can be given additional light during the early spring months. Use 60 watt bulbs spaced 4 feet apart and 30 inches above the plants. Use the lights for a period of two hours each night after dark up until May 1st, then discontinue lighting.



*Taking Cutting From Stock Plants*



*Healthy Well-Rooted Cuttings*





## Cultural Pointers

### SOILS

Chrysanthemums will grow well in a wide range of soil types but a fibrous silt loam is preferred. Blue grass sod to which rotted manure has been added plus an application of super phosphate will give excellent results. Porosity to permit rapid penetration of water and a uniform supply of fertilizer are the reasons for the great care in soil preparation.

#### Acidity

Evidence shows that the soil reaction should be slightly acid pH 6.5, although in many instances a neutral medium does very well. If your soil tests slightly alkaline apply  $\frac{1}{2}$  to one pound of agricultural sulfur per 100 square feet of area. However, if your soil is acid apply 3 to 5 pounds of agricultural ground limestone per 100 square feet of area.

#### Steam Sterilization

Steam sterilization is the only practical means known to destroy the verticillium wilt organisms present in many soils. The cuttings you purchase are free from wilt but if planted in soil that is not steam sterilized many will contract the trouble.

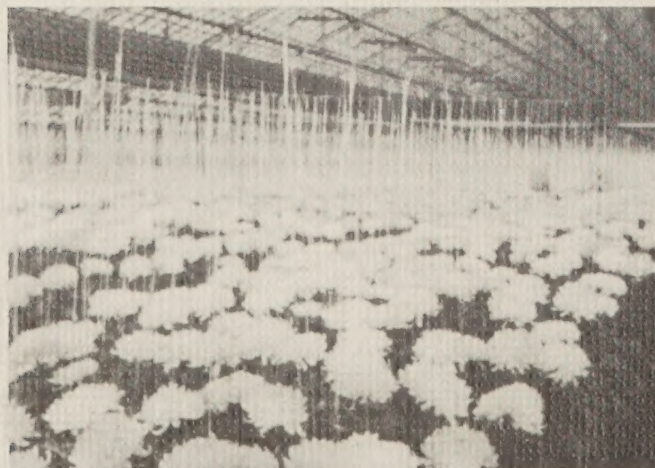
Old soil when properly managed will give comparable results with fresh soil. Add a quarter of the volume of humus in the form of manure or chopped alfalfa or red clover hay. Steam sterilize to destroy the verticillium wilt fungus as well as improve the structure of the soil. Steam sterilization may be done with the use of three inch tile or down spouting with  $\frac{1}{8}$  holes drilled every six inches on each side of the pipe. Use two lines in a three and one-half foot bench. Ridge the soil to the center of the bench directly over the lines, covering with tarpaulin, canvas or sisalkraft. The Thomas method is very similar with the exception that the pipe is laid on top of the soil and then covered so as to make it airtight. The Thomas method is not recommended where purlin posts are in the bench.

By introducing the steam in the center of a 100 foot bench and sending the steam both directions a more thorough sterilization is accomplished than if the steam were to be forced in at the end of the 100 foot bench. Cover the sides of the benches so that the entire bench and contents are heated to 180°F. Remove the covering one hour after the steam has been cut. This allows the excess moisture to pass from the soil as vapor. Leach heavily immediately after sterilizing to reduce excess fertility.

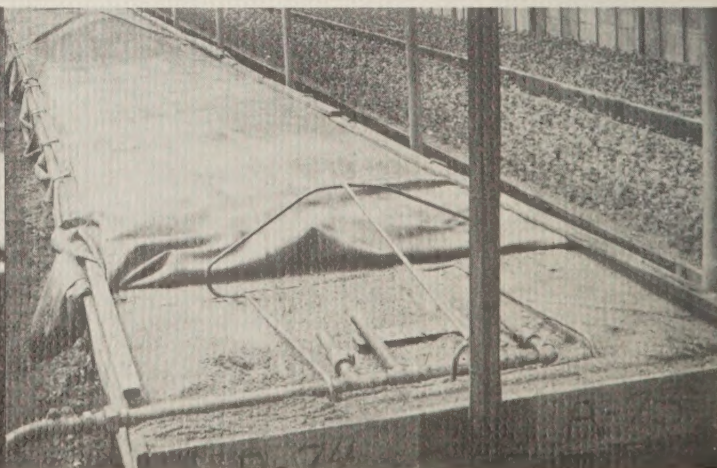
#### Steam Sterilization

A chemical which has proven its worth is Larvacide. This material must be used when the greenhouses are empty to avoid injury to adjoining crops. This gas is applied in liquid form with a special applicator so that 2 or 3 c. c. are applied at 10 inch centers. The soil should be moist before applying. A good suitable covering should be placed over the treated soil to keep the gas in the soil for at least 48 hours although a water seal applied 2 to 3 times every 24 hours will suffice. The soil temperature should be at least 60 degrees or higher. When used properly you can expect favorable control of insects, diseases and weed seeds.

Dowfume MC 2 has been tried and found to control nematodes, weed seeds, and some damping off organisms. Best results are obtained when the soil temperature is above 60°F. About the same procedure should be followed in its application as that described for Larvacide.



*Supporting Standards with the String Method*



*Thomas Method of Steam Sterilization*





## Cultural Pointers

### SOILS

#### Aeration

Proper drainage and proper aeration of the soil are very vital to good growth. Many times improper drainage of the bench or bed is the reason for a poor crop. No wet spots should ever be present. Soil drainage may be improved by the addition of various materials. Any coarse organic material such as manure, alfalfa hay or clover hay applied at the rate of not to exceed one-fourth the volume will separate the soil particles sufficiently to increase pore space. Heavy applications of sand to a soil have not always proven of value to a chrysanthemum crop. Aeration may also be increased by proper cultivation of the soil. Frequent scratchings are recommended during the early growth of the crop.

#### Soil Management

Soils vary a great deal over the country and yet many good crops of chrysanthemums are grown on all types of soil. Soil itself is not the most important but soil management is of extreme importance. In considering the management of soil the following pointers are suggested:

1. Apply a quarter of the volume of manure or other organic substitute once a year, usually just before steam sterilization. When growing on ground beds watch the tilling so that no impervious layer is formed which will later cause poor drainage.
2. Steam sterilize the soil to a temperature of 180°F, once a year.
3. After sterilization leach with 7 gallons of water per square foot. The amount will vary with the type of soil.
4. Apply 5 pounds of gypsum (Calcium sulfate) per 100 square feet. Apply gypsum just before planting.
5. Test soil for acidity and make correction before planting.
6. Apply 5 pounds of super phosphate per 100 square feet of area once a year. Excess phosphates tie up organic toxins.
7. Wait seven days from time of sterilization to planting.
8. Maintain the following nutrient levels:
 

Nitrate Nitrogen	5 — 10	p.p.m.
Phosphorus	5 — 10	p.p.m.
Potassium	20 — 40	p.p.m.
Calcium	200 — 250	p.p.m.
Solubridge reading	low	
9. Water thoroughly at every watering.
10. Apply a complete fertilizer at time of bud initiation. Heavy watering and light on the fertilizer will make chrysanthemums grow.



*Terminal Spray Formation Resulting  
From Time Pinching*





## Cultural Pointers

### FERTILIZERS

Soil structure is the key to soil fertility. The response of chrysanthemums to fertilization depends upon a favorable soil structure. It is known that plants require nutrients, water and air for growth. Good soil structure will provide proper aid and water relationships. Therefore, it behooves us to give proper attention to the soil before starting the crop. Good open soil is a necessity.

#### Feeding

Chrysanthemums do much better right from the start if the soil is not too rich. Very often this crop will start off faster in new soil as compared with old soil that has been sterilized just because of the lower nutrient level in the new soil. When using new soil, apply 5 lbs. of super phosphate per 100 sq. ft. of area, plus a liberal application of manure before planting. Phosphorus moves slowly within the soil mixture. It should always be added before the crop is benched so that it may be mixed thoroughly into the soil. One to two applications of a complete fertilizer, such as Electra, made after the plants become established and until color shows will be adequate. Electra applied at the rate of 2 pounds per 100 sq. ft. of bed is sufficient. Never apply fertilizers to a dry soil. Water lightly first, then apply the proper quantity of fertilizer, then water heavily. Liquid feeding with water soluble fertilizers is fast becoming the latest method of applying fertilizer. **Remember that the plant is the best guide as to fertilizer requirements and that more mums are ruined by overfeeding than by nutrient deficiencies.**

#### Levels of Nutrition

When using sterilized soil the best recommendations to follow would be to analyze your soil from time to time. We have found that when the following nutrient levels are kept, good crops are the result. Nitrate nitrogen should be 5-10 parts per million; phosphorus 5-10 parts per million; potassium 20-40 p.p.m. and calcium near 200 p.p.m. To increase the nitrate level feed one pound of ammonium sulfate per 100 sq. ft. of area, and to bring up the potassium apply muriate of potash not to exceed 1 lb. per 100 sq. ft.

Liberal application of calcium sulfate (gypsum) 5 pounds per 100 square feet after steam sterilization will prevent injury to young roots. High phosphorous also reduces toxicity after sterilization.

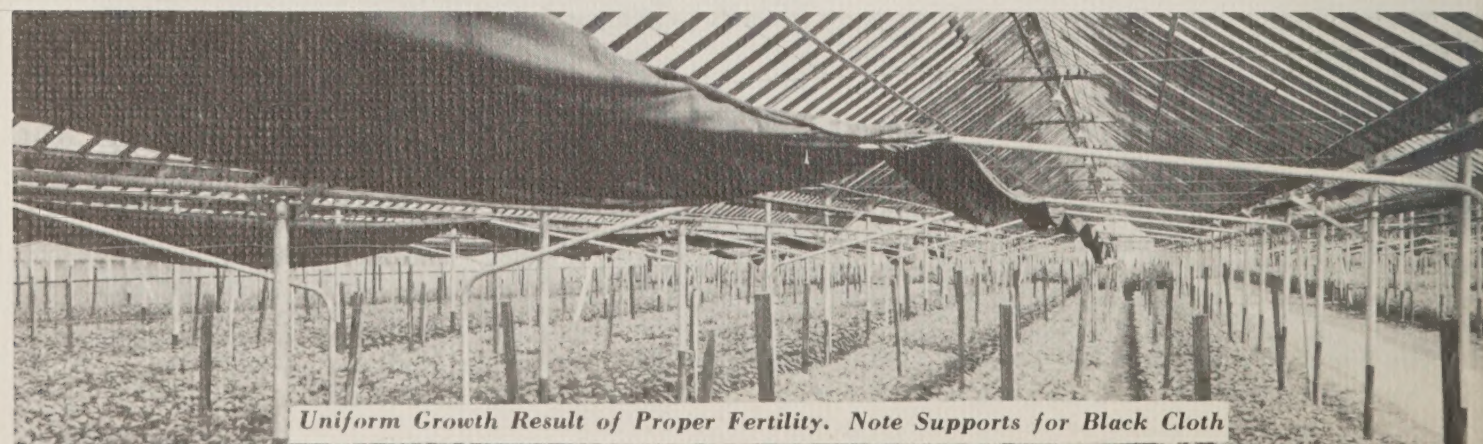
In the cooler weather and shorter days of September omit the nitrogen if the plants are growing freely. The mum assimilates more phosphorus and potassium during the time of bud initiation. Therefore, it is desirable to apply a complete fertilizer shortly after the buds are visible.

#### Excess of Soluble Salts

The foregoing pertains to plants that appear and behave normally. If plants are stunted, look yellow and sick, they are probably suffering from an extremely rich soil. Many greenhouse soils are excessively rich and chrysanthemums will not thrive in such a medium. If this is the case, the remedy is leaching with water. Lots and lots of it. Use more water than you ever applied to a bench before, two or three gallons per square foot. The water that runs through the soil carries with it the excessive plant food and allows your plants to recover from their indigestion. Did you ever notice fine healthy growth on a small part of a sick-looking bed of mums, and observe that it was under a broken pane of glass that allowed the rain water to come through and leach the soil below? Such a sight is a sure indication that the soil needed leaching. In most cases this condition is the result of the foolish and indiscriminate use of fertilizers. Use them when needed, but use them judiciously. Remember fertilizers are plant food in an extremely concentrated form.

#### Mulches

A mulch of peat, rotted manure, ground corn cobs, alfalfa or red clover hay applied two to three weeks after planting will help maintain a uniform moisture in the soil and increase the growth. The strawy mulches should only be used when the nutrient level is high as the bacteria remove the nutrients from the soil to decompose the strawy mulch.



*Uniform Growth Result of Proper Fertility. Note Supports for Black Cloth*





## Cultural Pointers

### PLANTING

Chrysanthemums grow equally as well on a raised bench or on a ground bed. The care is slightly different in that raised benches dry out more frequently during the summer and early fall months. It must be remembered that a good circulation of air is desirable, yet a direct draft is not advisable.

#### Planting Date

The proper date of planting will naturally vary according to when the crop is to bloom. For natural blooming we prefer to plant three or four weeks before the last pinching date. When flowering from August to October we suggest you plant 2 to 3 weeks before the pinching date. In the continuous flowering schedule where no pinch is followed we have given the advised planting dates in that schedule.

#### Planting Rooted Cuttings

Many florists are planting rooted cuttings directly into permanent locations. This not only reduces several handlings and production costs, but also produces a better quality bloom. We fully realize that it is often an impossibility for all to treat their chrysanthemums this way. However, we have found that young, soft plants are superior to hard woody plants. Never plant cutting any deeper than what they were in the propagating media. Too deep will cause stem rot.

#### No Pinch Method

Cuttings are planted and allowed to grow without pinching. It is an essential practice if three crops a year are to be realized. No pinch method produces a superior crop during the dark months whereas a pinched crop is weak and of poor quality. The cost of cuttings is overcome by a high quality and faster crop.

#### Light Intensity

When planting rooted cuttings into their permanent position it is necessary to shade the glass or to put aster cloth directly over the young plants until they are established. When shading the glass be sure that the material is applied lightly.

When growing quality chrysanthemums, the higher the light intensity or the least amount of shade over the plants during the growing season, the better the quality of bloom. In cloth houses the amber saran is superior to the green because of more light under the amber covering. Naturally the plants require more water when growing under high light intensities.

It is recommended to shade the plants when flowers are about one-half open to prevent them from sunburning. When growing standards a good practice would be to stretch muslin directly over the open blooms, this not only prevents sunburning but also keeps the blooms free from dirt.

#### Distance of Planting

For good quality pompons we prefer to plant 7x8 inches or 8x8 inches pinched once, and thin the shoots to three per plant. The outside rows will support one more stem than the center rows in the bed. Nothing is gained by planting at a closer distance. Light intensity should be high at the base of the plant for quality blooms and if planted too close we have lost the factor which promotes quality. Large flowered varieties are generally planted 8x8 inches or 8x9 inches, this also applies to disbud anemone and single varieties.

#### PLANTING DISTANCES FOR NO-PINCH METHOD

Flowering Date	Pompons	Standards
June 15 - September 15	4 x 6	6 x 6
September 15 - November 1	4 x 7	6 x 7
November 1 - December 15	4 x 8	6 x 8
December 15 - March 1	4 x 9	6 x 9
March 1 - April 15	4 x 8	6 x 8
April 15 - June 15	4 x 7	6 x 7

*Supporting Standards with the Box Tying Method*







## Cultural Pointers

### PINCHING

For a good number of years the reason for pinching was to regulate the number of stems on the plant. In recent years we have learned that in case of pompons or singles the pinching determines the type of spray formation. With standards, pinching will determine the type of bud formation, whether it be a crown or terminal bud.

#### Time Pinching

The precision culture of chrysanthemums is all set up around the "Last Pinch." To grow a quality pompon you should receive the rooted cuttings sometime in June and then plant into the permanent location approximately three to four weeks before the date listed in our list of varieties under "Last Pinch." When growing shaded pompons the "Last Pinch" should be 21 to 35 days before the shading date. When shading the 8- and 9-week varieties the last pinch should be 30 to 35 days from pinch to shade while the 10-week varieties require only 21 to 28 days from date of pinch to date of shade.

Time pinching standards will eliminate the formation of the crown bud and produce terminal buds which will in turn produce a much straighter flowering stem.

#### Pruning

Another important factor is to remove all shoots but 3 or 4 per plant, in a few instances only 2 shoots are allowed to mature. Allow more shoots to develop on the outside rows than on the center rows of a bed. When fewer breaks are selected the planting distance should be closer. If you prefer to have a number of smaller sprays, with fewer blooms open at one time, follow the double pinching procedure.

Standards are usually pinched once to induce breaks so that they may be grown two per plant. The strongest breaks are selected and all others removed. It is well to pinch on the date suggested in the general list. Careful observation has shown us that neckiness with some varieties is eliminated by pinching on the respective dates. Singles and anemones are usually grown 3 to 4 stems per plant.

#### Condition of Plant

When pinching, remove only the soft growth, never cut into the woody stems as this will not produce the type of breaks you desire. It is our experience that it is best not to pinch until the plant has become well established in its permanent location. In all cases it is better to have at least eight to ten inches of growth on the plants before pinching. (Photos below.)

When double pinching, pinch the first time 30 days before the "Last Pinch." This allows enough time to produce a growth long enough to pinch at the proper time.

If by chance you are delayed in planting and your plants will be too tall, it is advisable to pinch early enough before benching so that the breaks will be several inches long at time of planting. Never pinch hard plants at the same time they are planted into the bench, a heavy loss may result. Better wait until plants are established, then pinch.

The last pinching dates given after each variety will help you grow that variety to excellency. Remember that pinching is just one cultural factor and will only function when all other cultural points are carried out properly.



*Well Established Young Plant*



*Top Several Inches Removed*



*Strong Breaks Resulting  
from Single Pinch*





## Cultural Pointers

### DISBUDDING

Large flowered varieties produce side shoots in the axils of the leaves which should be removed very close to the base at regular weekly intervals. Disbuds are handled the same as standards.

#### Taking Bud

Taking bud means allowing the flowering bud to remain and removing all others, applies to standards and disbuds. The chrysanthemum usually produces two distinct types of flowering buds—Crown and Terminal. The first bud produced is called the crown bud and is distinguished by being surrounded by other lateral leaf buds. The second is the terminal bud and is surrounded by several flower buds. If the plant is planted especially early, a second crown bud might appear. In appearance this second crown bud is exactly the same as the first.

The procedure of "Taking Bud" depends very largely on the variety. Usually the safest rule to follow is not to select a bud on early or midseason varieties before August 25. In our list of large flowered varieties under "Select Bud" you will find the date on which to select the proper bud. If bud is selected too early a large percentage of the flowers will be crippled. Good common sense must be used to determine the proper selection of bud.

The formation of the crown bud usually does not take place when growing according to the "Time Pinch Plan." When following "Time Pinch" select the first bud that appears. This will result in straight stems without the dogleg growth that appears when second bud is taken.

The final selection of bud should not be made when the cluster buds are too small as this will very likely cause injury to the stem near the bloom. Likewise it is not advisable to delay selecting the bud too long. Some growers like to leave an alternate bud until they are certain that nothing will happen to the one finally selected.

### DISBUDDED SPRAYS

The procedure in growing disbudded sprays, is to wait until the crown bud forms, then remove all vegetative shoots but three. Later when terminal buds appear disbud each shoot similar to the normal disbudding of standards. When the blooms mature there are three flowers on each spray. In singles and anemones, the size of the blooms will be a trifle smaller than when they are grown as one flower per stem. Raise three stems per plant similar to straight disbud. Varieties such as Goldsmith, Valencia, etc., can be grown as disbudded sprays.

Good Chrysanthemums result from the careful and thorough practice of the basic principles of plant growth, plus the acknowledgment of certain differences in the nature of various varieties. Growing disbudded sprays is a modification in culture which is very much worthwhile.



*Early or Crown bud surrounded by lateral buds*



*Late or Terminal bud surrounded by flower buds*



*Late or Terminal bud selected*





## Cultural Pointers

### WATERING

The knowledge of proper watering is essential to success. Chrysanthemums produce extremely heavy foliage and a great deal of water is required at the roots, and under ordinary conditions of bench culture overwatering would be difficult. When grown in beds more care should be exercised in watering. Some soils look wet on the surface but are very dry several inches below.

When planting rooted cuttings directly into their permanent locations it is essential to water thoroughly to set the soil around the plant roots. We suggest double watering again when the soil gets on the dry side. By this time the plants are established and regular watering should be followed. Keep humidity in the house by wetting down bench and walks.

Steam sterilization causes the soil to become more granular and capillary movement of water in it is much slower than in soils not steamed. Cuttings planted in it cannot obtain water readily, and for this reason should be kept more moist than in soils not sterilized.

### Surface Watering

During the past several years many labor saving devices have been developed. Surface watering is one that will save many hours of hand watering your chrysanthemum crop.

The Skinner Superior nozzle is the final answer to the exacting requirements of surface watering. An absolutely flat uniform spray is obtained over a full circle with a constant pattern under any pressure. This nozzle throws a fine spray 5 feet in diameter at 5 pounds pressure at the nozzle, and uses 0.9 gallons per minute.

When installing surface watering, check your water supply and the capacity needed to irrigate your area. It is advisable to have an engineer figure out your requirements.

### Leaching

Many greenhouse soils are excessively rich and chrysanthemums will not thrive in such a medium. If this is the case, the remedy is leaching with water. After the soil is sterilized it should be leached. Use a skinner line and allow it to run for hours if necessary. Raised benches do not require as much water to leach.

### CULTURED STOCK

Through the development of science your chrysanthemum cuttings have all been grown from stock that has been cultured to determine the presence or absence of the fungus that causes Verticillium Wilt or more commonly referred to as Seidewitz Disease. The culturing of cutting is to place bits of the stem of a cutting into the gelatine-like agar medium which is used for growing fungi. If the tissue is not infected, no growth of Verticillium develops. As each cutting is cultured it is placed in



sterile propagating benches spaced six inches each way. After 10 days of incubating the agar plates one can determine if the wilt organism is present in the tissue. All the cuttings that show the presence of Verticillium are discarded and only those that show a negative reading are saved and grown into stock plants. This clean stock must be grown under sterile conditions at all times as cuttings can be easily contaminated when planted into soil that has the Verticillium organism present.

Verticillium wilt is one of the worst diseases of the chrysanthemum. If you obtain cuttings propagated from cultured stock and provided you grow your plants in clean soil this disease should not be of any trouble to you.

*Superior Nozzle Showing Uniformity of Pattern*





## Cultural Pointers

### TEMPERATURE AND LIGHT

Chrysanthemums grow most rapidly under conditions of high light intensity and with a temperature above 60°F.

Temperatures much above 90°F will act like a prohibitor. When the night temperatures are in the 90's bud development is hindered, this is especially true when black clothing in the hottest part of the year. To reduce high temperatures under the black cloth it is suggested that the sides of the cloth be lifted after sundown and dropped again before the sun rises in the morning.

#### Blindness

Blindness may be a combination of late planting, late pinching, too much moisture, too rich a soil and too low a temperature at bud initiation. It has been shown that if chrysanthemums are grown in temperatures much below 50° at the time of bud initiation the plants will remain vegetative and will not form flower buds. Blindness is usually associated with those varieties which flower the latter part of November or later. Not all varieties initiate buds at the same date. The late flowering varieties may not set bud until October.

To overcome blind growth keep a night temperature of 55 - 60° from September 15 on until the buds are visible. Likewise run the soil moisture low and do not feed during this period. After the buds are visible it is safe to reduce the temperature to 50°.

When growing chrysanthemums for "Continuous Flowering" it is very important to maintain a temperature of 60° during the period of bud formation or blindness and poor budding will result.

#### Lack of Color

Pink and bronze varieties will have poor color when high temperatures prevail during the development period. Some of the new varieties retain their color better than the older varieties.

#### Petal Burn

When blooming chrysanthemums during high temperatures and high light intensity it is advisable to cover the beds with a cheesecloth stretched about 18 inches above the top of the developing blooms. This covering will also help keep dirt off the open blooms. Sunburn sometimes is confused with flower ray blight which is caused by Botrytis. Botrytis is more abundant during periods of high humidity and low temperatures. Ray blight can be controlled by spraying with **Parzate** when the color shows and repeat every 5 days.

### SHIPPING FLOWERS

Packing of cut flowers should be carefully studied. The most common error is over-crowding in the shipping boxes. Not securely fastening the blooms in the box will cause bruising of the petals. Cleating or sewing the stems to the box is essential. Cushions the blooms by placing enough padded paper on the bottom of the corrugated box and between the layers of blooms. Wrap the pompons with a loose wrapper. The wrapping paper could have the name of the grower printed on it.

Long distance shipments carry better if the cut flowers are packed dry. Reduction of temperature is accomplished by precooling the packed cut flowers.



*Packing Shed with Ample Room*





## Cultural Pointers

### SUPPORTS

Standards and disbuds are usually staked up by means of a support, starting when the plants are a foot high. The simplest method is to run a wire overhead along each row and tie a string from the base of the plant to this wire. This method eliminates the need of tying the stem at intervals to the support since the string may be twined in and out of the leaves of the stem. The quickest means of support is the use of galvanized wire stakes, which are fastened by patented clips to the wire overhead. Several string ties are necessary to keep the stem in position. In some cases the same type of support that is used in supporting carnations with wire and string has been used satisfactorily.

Pompons are usually supported by the string and wire method similar to that used for snapdragons and carnations. Two layers of wires are necessary to give the pompons good support. When growing out of doors or in cloth houses heavier wire is necessary to give proper support because moisture often collects in the open blooms accounting for the extra weight requiring very strong supports.

### SOUTHERN CULTURE

It is true the material presented in this manual is primarily from experiences gathered for the northern part of the United States. Yet many of the pointers are similar for all parts of the country.

We have noted that the early flowering varieties from October 15 to November 1 flower approximately one week later in the southern states while those flowering naturally November 15 to December 1 bloom one week earlier than the dates given in this manual. Last Pinch dates will have to be governed accordingly.

When shading, it has been suggested that the black cloth be placed on the beds late in the evening 7 or 8 P.M. and left on until 8 or 9 A.M. Shading the usual time traps the excessive heat under the cloth and appears to affect foliage and flower buds. Pink and bronze varieties used for shading and early normal production fade to inferior colors.

During the months of July and August little growth may be expected, therefore fertilization should be kept to a minimum. When the nights get cooler in September, October and November, growth is more rapid and the fertilization program should be stepped up accordingly.

The young plants should be illuminated until May 1 to prevent premature flower buds.

The length of day is constantly changing. In Ohio the shortest day has 9 hours of light while the longest day length is 15 hours, in Florida it varies from 10 for the shortest and 14 for the longest. In Ohio the day length will change about 15 minutes each week.

### CLOTH HOUSES

Much has been written about the construction and care of the cloth house. It seems that this subject is well taken care of, although there are a few new ideas that should be mentioned.

To grow quality stock it is necessary to use some type of covering such as aster cloth, onion bag or saran. Saran is manufactured by Dow Chemical Co. and is a plastic that will outlive copper screening. There are several colors of this material and the natural colored saran produced better quality pompons than did the green colored material. The amber colored saran allows more light to reach the plants. The plants growing under natural colored saran required twice the amount of water as did those under the green cloth. The important difference is that higher quality stock was produced under the natural colored saran.



*Cloth House Made of Natural Colored Saran*





## *Continuous Flowering of Chrysanthemums*

Since the advent of daylength and temperature control we have seen chrysanthemum cut flowers on the markets every month since 1946, thanks to our never-tiring research workers in various federal and state institutions. Season has been eliminated and the flowering time can be accurately controlled.

### **Daylength Control**

In the locality of Ohio the days are short enough for bud formation around September 20, therefore when using black cloth this treatment can be discontinued at this date. However, if you are interested in preventing bud initiation it is advisable to start to lengthen the day with additional light August 1 for the 8-week group, August 10 for the 10-week group and August 20 for the 12-week group.

To prevent the plants from budding in the spring it is necessary to light the plants until May 1. If you want bud formation start shading the 8- and 9-week group March 10, the 10-week group March 1 and the 12-week group February 20.

### **Lighting**

The light intensity must be 10 foot candles to prevent bud initiation. For single benches install 100 watt lamps with reflectors spaced at six foot intervals, three feet above the plants. When lighting an entire house the lamps should be installed in the ridge of the house, the number depending on the width of the house. The lights should be turned on at any time during the night.

In the months of August, September, October, March and April the lights should be operated for three hours each night. During November and February it is necessary to light four hours while in December and January five hours are required. Yoder Brothers have found that they could overcome poor spray formation by reducing the hours of lighting to one-third during the last third of the lighting period. That is, if the lighting period is 60 days, the last one-third or the last 20 days would receive only one-third of the light normally given in that particular month. This will open up the sprays that normally are clubbed together.

### **Shading**

Use a good durable **Black Cloth** which when applied will reduce the light intensity to 2 foot candles or less. More light intensity than this will result in delayed flowering and unevenness of bloom.

The cloth should be applied at 5 P.M. and removed at 8 A.M. Continue covering each evening on pompons until the latest buds show color and most of the flowers are well developed. For large flowering varieties shading can be discontinued after all flowering buds have attained the diameter of approximately one-half inch.

Be sure that covering is complete on all benches shaded, as any leaks in light will cause uneven spots in the bench at blooming time.

Black cloth should be applied each evening although missing one night a week will give fair results but delayed flowering results when cloth is not applied each evening.

### **Temperature Control**

For bud formation a minimum temperature of 60-65 degrees should be maintained. During the growing period a night temperature near 60 degrees is ideal. When black cloth treatment is started raise the night temperature to 60 until color shows and then drop to 52 to 55 degrees. Excessive high temperatures prohibit the bud development and during seasons of night temperatures above 90 degrees it is suggested that the black cloth be raised after sunset and lowered again in the morning before daylight. This cooler temperature hastens the development of the buds.

When growing a single bench of pompons in a cool house, it has been a problem how to increase the temperature necessary for bud set. A simple method is when applying black cloth allow the cloth to drop to the floor on each side of the bench. Turn on the heat lines under that bench and you will find that a 60 to 65 degree temperature can be maintained.

### **Interrupted Shading to Control Pompon Sprays**

Quality can be obtained when you control the spray formation in pompons. The control requires no more work than normal but does require a little more planning. The result of controlling the spray is a more open head, uniformity, and larger flowers. The color is more intense with most colored varieties.

Two general types of controlled sprays are most useful. 1. Terminal bud set, followed by a period of long days to allow the buds to develop greater size and the individual little flower stems to elongate. The schedule for producing this allows 21 to 28 long days from the pinch to the first short day treatment, 12 short days, 10 long days, then short days to bloom. This schedule requires about 7 days longer for development than if the original short day treatment were continued to flowering. The sprays appear to have been disbudded because the original bud set develops on long stems. It is probably the most desirable of the two types of controlled sprays now recommended for most markets. 2. Branched sprays are produced by giving 4 short days, followed by 15 to 20 long days, then short days to bloom. The first short days produce a crown bud which causes lateral shoots to develop below it. If 15 long days follow the short day treatment, the laterals will have stems 8 to 15 inches long. They form terminal clusters. If you are going to disbud or if your trade likes branched sprays, this is the way to get them uniform.





# CHRYSANTHEMUM CUTTINGS

## Chrysanthemum Flowering Schedule

Flowering Date	Variety			Plant (1) and Begin Lights	Lights Off
Jan. 7	<b>Ind. Yellow</b> <b>Ind. Bronze</b>	<b>Ind. White</b>	<b>Ind. Pink</b>	Sept. 10	Nov. 5
	<b>Yellow Monument</b> <b>Jean Elizabeth</b> <b>Orchid Queen</b>	<b>Yellow Mefo</b> <b>Mefo</b>	<b>Monument</b> <b>Marketeer</b>	Sept. 10	Oct. 29
	<b>Lollipop</b> <b>Little America</b> <b>Beauregard</b> <b>Brocade</b>	<b>Yellow Shasta</b> <b>Matchless</b> <b>Linda Lou</b>	<b>Shasta</b> <b>*Moonglow</b> <b>Soprano</b>		
	<b>Harvester</b> <b>Thanks. Pink</b>	<b>Golden Pearson</b> <b>Ed. Seidewitz</b>	<b>Chattanooga</b>		
	<b>Bojangles</b> <b>Yel. L.I. Beauty</b> <b>Highbrow</b> <b>White Valencia</b> <b>Valencia</b> <b>Indian Head</b>	<b>Champagne</b> <b>Golden Jane</b> <b>L. I. Beauty</b> <b>Dk. Valencia</b> <b>Rusticon</b> <b>Apr. Valencia</b>	<b>Goldsmith</b> <b>Snowflurry</b> <b>Paramount</b> <b>Pinky</b> <b>Festival</b> <b>Crim. Valencia</b>	Sept. 10	Oct. 22
	<b>Golden Mrs. Ross</b>	<b>December Glory</b>		Sept. 10	Oct. 15
	<b>Nosegay</b> <b>Omega</b> <b>Cordova</b> <b>Falcon</b>	<b>Cinderella</b> <b>Yellow Cameo</b> <b>Enchantress</b> <b>Galaxy</b>	<b>Goldtone</b> <b>Cameo</b> <b>Dk. Enchantress</b> <b>Holiday</b>		
	<b>Challenge</b> <b>Snowcrest</b> <b>Heirloom</b> <b>Riviera</b> <b>Merrymaker</b>	<b>Shamrock</b> <b>Fortune</b> <b>Minstrel</b> <b>Xmas Star</b> <b>Br. Minstrel</b>	<b>Silversmith</b> <b>Snowcap</b> <b>Medallion</b> <b>Xmas Greeting</b>		
	<b>Ind. Yellow</b> <b>Ind. Bronze</b>	<b>Ind. White</b>	<b>Ind. Pink</b>	Sept. 10	Nov. 19
	<b>Yellow Monument</b> <b>Jean Elizabeth</b> <b>Orchid Queen</b>	<b>Yellow Mefo</b> <b>Mefo</b>	<b>Monument</b> <b>Marketeer</b>	Sept. 10	Nov. 12
Jan. 21	<b>Lollipop</b> <b>Little America</b> <b>Beauregard</b> <b>Brocade</b>	<b>Yellow Shasta</b> <b>Matchless</b> <b>Linda Lou</b>	<b>Shasta</b> <b>*Moonglow</b> <b>Soprano</b>		
	<b>Harvester</b> <b>Thanks. Pink</b>	<b>Golden Pearson</b> <b>Ed. Seidewitz</b>	<b>Chattanooga</b>		
	<b>Bojangles</b> <b>Yel. L.I. Beauty</b> <b>Highbrow</b> <b>White Valencia</b> <b>Valencia</b> <b>Indian Head</b>	<b>Champagne</b> <b>Golden Jane</b> <b>L. I. Beauty</b> <b>Dk. Valencia</b> <b>Rusticon</b> <b>Apr. Valencia</b>	<b>Goldsmith</b> <b>Snowflurry</b> <b>Paramount</b> <b>Pinky</b> <b>Festival</b> <b>Crim. Valencia</b>	Sept. 10	Nov. 5
	<b>Golden Mrs. Ross</b>	<b>December Glory</b>		Sept. 10	Oct. 29
	<b>Nosegay</b> <b>Omega</b> <b>Cordova</b> <b>Falcon</b>	<b>Cinderella</b> <b>Yellow Cameo</b> <b>Enchantress</b> <b>Galaxy</b>	<b>Goldtone</b> <b>Cameo</b> <b>Dk. Enchantress</b> <b>Holiday</b>		
	<b>Challenge</b> <b>Snowcrest</b> <b>Heirloom</b> <b>Riviera</b> <b>Merrymaker</b>	<b>Shamrock</b> <b>Fortune</b> <b>Minstrel</b> <b>Xmas Star</b> <b>Br. Minstrel</b>	<b>Silversmith</b> <b>Snowcap</b> <b>Medallion</b> <b>Xmas Greeting</b>		
	<b>Ind. Yellow</b> <b>Ind. Bronze</b>	<b>Ind. White</b>	<b>Ind. Pink</b>	Sept. 10	Nov. 19
	<b>Yellow Monument</b> <b>Jean Elizabeth</b> <b>Orchid Queen</b>	<b>Yellow Mefo</b> <b>Mefo</b>	<b>Monument</b> <b>Marketeer</b>	Sept. 10	Nov. 12
	<b>Lollipop</b> <b>Little America</b> <b>Beauregard</b> <b>Brocade</b>	<b>Yellow Shasta</b> <b>Matchless</b> <b>Linda Lou</b>	<b>Shasta</b> <b>*Moonglow</b> <b>Soprano</b>		
	<b>Harvester</b> <b>Thanks. Pink</b>	<b>Golden Pearson</b> <b>Ed. Seidewitz</b>	<b>Chattanooga</b>		
Jan. 21	<b>Bojangles</b> <b>Yel. L.I. Beauty</b> <b>Highbrow</b> <b>White Valencia</b> <b>Valencia</b> <b>Indian Head</b>	<b>Champagne</b> <b>Golden Jane</b> <b>L. I. Beauty</b> <b>Dk. Valencia</b> <b>Rusticon</b> <b>Apr. Valencia</b>	<b>Goldsmith</b> <b>Snowflurry</b> <b>Paramount</b> <b>Pinky</b> <b>Festival</b> <b>Crim. Valencia</b>	Sept. 10	Nov. 5
	<b>Golden Mrs. Ross</b>	<b>December Glory</b>		Sept. 10	Oct. 29
	<b>Nosegay</b> <b>Omega</b> <b>Cordova</b> <b>Falcon</b>	<b>Cinderella</b> <b>Yellow Cameo</b> <b>Enchantress</b> <b>Galaxy</b>	<b>Goldtone</b> <b>Cameo</b> <b>Dk. Enchantress</b> <b>Holiday</b>		
	<b>Challenge</b> <b>Snowcrest</b> <b>Heirloom</b> <b>Riviera</b> <b>Merrymaker</b>	<b>Shamrock</b> <b>Fortune</b> <b>Minstrel</b> <b>Xmas Star</b> <b>Br. Minstrel</b>	<b>Silversmith</b> <b>Snowcap</b> <b>Medallion</b> <b>Xmas Greeting</b>		
	<b>Ind. Yellow</b> <b>Ind. Bronze</b>	<b>Ind. White</b>	<b>Ind. Pink</b>	Sept. 10	Nov. 19
	<b>Yellow Monument</b> <b>Jean Elizabeth</b> <b>Orchid Queen</b>	<b>Yellow Mefo</b> <b>Mefo</b>	<b>Monument</b> <b>Marketeer</b>	Sept. 10	Nov. 12
	<b>Lollipop</b> <b>Little America</b> <b>Beauregard</b> <b>Brocade</b>	<b>Yellow Shasta</b> <b>Matchless</b> <b>Linda Lou</b>	<b>Shasta</b> <b>*Moonglow</b> <b>Soprano</b>		
	<b>Harvester</b> <b>Thanks. Pink</b>	<b>Golden Pearson</b> <b>Ed. Seidewitz</b>	<b>Chattanooga</b>		
	<b>Bojangles</b> <b>Yel. L.I. Beauty</b> <b>Highbrow</b> <b>White Valencia</b> <b>Valencia</b> <b>Indian Head</b>	<b>Champagne</b> <b>Golden Jane</b> <b>L. I. Beauty</b> <b>Dk. Valencia</b> <b>Rusticon</b> <b>Apr. Valencia</b>	<b>Goldsmith</b> <b>Snowflurry</b> <b>Paramount</b> <b>Pinky</b> <b>Festival</b> <b>Crim. Valencia</b>	Sept. 10	Nov. 5
	<b>Golden Mrs. Ross</b>	<b>December Glory</b>		Sept. 10	Oct. 29
	<b>Nosegay</b> <b>Omega</b> <b>Cordova</b> <b>Falcon</b>	<b>Cinderella</b> <b>Yellow Cameo</b> <b>Enchantress</b> <b>Galaxy</b>	<b>Goldtone</b> <b>Cameo</b> <b>Dk. Enchantress</b> <b>Holiday</b>		
	<b>Challenge</b> <b>Snowcrest</b> <b>Heirloom</b> <b>Riviera</b> <b>Merrymaker</b>	<b>Shamrock</b> <b>Fortune</b> <b>Minstrel</b> <b>Xmas Star</b> <b>Br. Minstrel</b>	<b>Silversmith</b> <b>Snowcap</b> <b>Medallion</b> <b>Xmas Greeting</b>		

(1) No pinch method. When pinching, plant 3 weeks earlier and pinch on plant date.

\* Requires 10 less long days, plant 10 days later.





# CHRYSANTHEMUM CUTTINGS

## Chrysanthemum Flowering Schedule

Flowering Date	Variety			Plant (1) and Begin Lights	Lights Off
Feb. 4	<b>Ind. Yellow</b> <b>Ind. Bronze</b>	<b>Ind. White</b>	<b>Ind. Pink</b>	Sept. 24	Dec. 3
	<b>Yellow Monument</b> <b>Jean Elizabeth</b> <b>Orchid Queen</b>	<b>Yellow Mefo</b> <b>Mefo</b>	<b>Monument</b> <b>Marketeer</b>	Sept. 24	Nov. 26
	<b>Lollipop</b> <b>Little America</b> <b>Beauregard</b> <b>Brocade</b>	<b>Yellow Shasta</b> <b>Matchless</b> <b>Linda Lou</b>	<b>Shasta</b> <b>*Moonglow</b> <b>Soprano</b>		
	<b>Harvester</b> <b>Thanks. Pink</b>	<b>Golden Pearson</b> <b>Ed. Seidewitz</b>	<b>Chattanooga</b>		
	<b>Bojangles</b> <b>Yel. L.I. Beauty</b> <b>Highbrow</b> <b>White Valencia</b> <b>Valencia</b> <b>Indian Head</b>	<b>Champagne</b> <b>Golden Jane</b> <b>L.I. Beauty</b> <b>Dk. Valencia</b> <b>Rusticon</b> <b>Apr. Valencia</b>	<b>Goldsmith</b> <b>Snowflurry</b> <b>Paramount</b> <b>Pinky</b> <b>Festival</b> <b>Crim. Valencia</b>	Sept. 24	Nov. 19
	<b>Golden Mrs. Ross</b>	<b>December Glory</b>		Sept. 24	Nov. 12
	<b>Nosegay</b> <b>Omega</b> <b>Cordova</b> <b>Falcon</b>	<b>Cinderella</b> <b>Yellow Cameo</b> <b>Enchantress</b> <b>Galaxy</b>	<b>Goldtone</b> <b>Cameo</b> <b>Dk. Enchantress</b> <b>Holiday</b>		
	<b>Challenge</b> <b>Snowcrest</b> <b>Minstrel</b> <b>Riviera</b> <b>Merrymaker</b>	<b>Shamrock</b> <b>Fortune</b> <b>Heirloom</b> <b>Xmas Star</b> <b>Br. Minstrel</b>	<b>Silversmith</b> <b>Snowcap</b> <b>Medallion</b> <b>Xmas Greeting</b>		
	<b>Ind. Yellow</b> <b>Ind. Bronze</b>	<b>Ind. White</b>	<b>Ind. Pink</b>	Oct. 1	Dec. 17
	<b>Yellow Monument</b> <b>Jean Elizabeth</b> <b>Orchid Queen</b>	<b>Yellow Mefo</b> <b>Mefo</b>	<b>Monument</b> <b>Marketeer</b>	Oct. 1	Dec. 10
Feb. 18	<b>Lollipop</b> <b>Little America</b> <b>Beauregard</b> <b>Brocade</b>	<b>Yellow Shasta</b> <b>Matchless</b> <b>Linda Lou</b>	<b>Shasta</b> <b>*Moonglow</b> <b>Soprano</b>		
	<b>Harvester</b> <b>Thanks. Pink</b>	<b>Golden Pearson</b> <b>Ed. Seidewitz</b>	<b>Chattanooga</b>		
	<b>Bojangles</b> <b>Yel. L.I. Beauty</b> <b>Highbrow</b> <b>White Valencia</b> <b>Valencia</b> <b>Indian Head</b>	<b>Champagne</b> <b>Golden Jane</b> <b>L.I. Beauty</b> <b>Dk. Valencia</b> <b>Rusticon</b> <b>Apr. Valencia</b>	<b>Goldsmith</b> <b>Snowflurry</b> <b>Paramount</b> <b>Pinky</b> <b>Festival</b> <b>Crim. Valencia</b>	Oct. 1	Dec. 3
	<b>Golden Mrs. Ross</b>	<b>December Glory</b>		Oct. 1	Nov. 26
	<b>Nosegay</b> <b>Omega</b> <b>Cordova</b> <b>Falcon</b>	<b>Cinderella</b> <b>Yellow Cameo</b> <b>Enchantress</b> <b>Galaxy</b>	<b>Goldtone</b> <b>Cameo</b> <b>Dk. Enchantress</b> <b>Holiday</b>		
	<b>Challenge</b> <b>Snowcrest</b> <b>Minstrel</b> <b>Riviera</b> <b>Merrymaker</b>	<b>Shamrock</b> <b>Fortune</b> <b>Heirloom</b> <b>Xmas Star</b> <b>Br. Minstrel</b>	<b>Silversmith</b> <b>Snowcap</b> <b>Medallion</b> <b>Xmas Greeting</b>		
				Oct. 1	Nov. 19

(1) No pinch method. When pinching, plant 3 weeks earlier and pinch on plant date.

\* Requires 10 less long days, plant 10 days later.





# CHRYSANthemum CUTTINGS

## Chrysanthemum Flowering Schedule

Flowering Date	Variety			Plant (1) and Begin Lights	Lights Off
March 3	Ind. Yellow Queen's Lace	Yellow Lace Ind. Pink	Ind. White Ind. Bronze	} Oct. 15	Dec. 31
	Yellow Monument Mefo Orchid Queen Bojangles White Mensa *Moonglow Linda Lou	Yellow Mefo Jean Elizabeth  Lollipop Shasta Matchless Soprano	Monument Marketeer  Yellow Shasta Little America Beauregard Brocade		
	Harvester Thanks. Pink Champagne Golden Jane Paramount Dk. Valencia Crim. Valencia	Golden Pearson Ed. Seidewitz Yellow L.I. Beauty Snowflurry White Valencia Valencia Indian Head	Chattanooga  Goldsmith L.I. Beauty Pinky Apr. Valencia Festival	} Oct. 15	Dec. 17
	Nosegay Yellow Cameo Galaxy	Goldtone Cordova Holiday	Omega Cameo Falcon		
	Silversmith Snowcap	Fortune Minstrel	Snowcrest Br. Minstrel	} Oct. 15	Dec. 3
March 17	Ind. Yellow Queen's Lace	Yellow Lace Ind. Pink	Ind. White Ind. Bronze	} Oct. 29	Jan. 14
	Yellow Monument Mefo Orchid Queen Golden Mensa Yellow Shasta Little America Beauregard	Yellow Mefo Jean Elizabeth  Bojangles White Mensa Matchless Linda Lou	Monument Marketeer  Lollipop Shasta *Moonglow Brocade		
	Golden Pearson Champagne Paramount L.I. Beauty Festival	Thanks. Pink Goldsmith Cordova Rusticon Pinky	Yel. L.I. Beauty Snowflurry Indian Head	} Oct. 29	Dec. 31
	Omega	Nosegay	Galaxy		Dec. 24
	Golden Herald	Gold Coast		Nov. 12	Feb. 4
March 31	Ind. Yellow Queen's Lace Ind. Bronze	Yellow Lace Betsy Ross Encore	Ind. White Ind. Pink Seneca	} Nov. 12	Jan. 28
	Yellow Monument Mefo Golden Mensa White Mensa Matchless Dk. Br. Masterpiece Masterpiece	Yellow Mefo Jean Elizabeth Lollipop Shasta *Moonglow Linda Lou	Monument Orchid Queen Shasta Little America Beauregard Brocade		
	Klondike Festival	Majorette Golden Pearson	Indian Head	} Nov. 12	Jan. 14
April 14	Golden Herald	Gold Coast		Dec. 3	Feb. 18
	Ind. Yellow Queen's Lace Ind. Bronze	Yellow Lace Betsy Ross Encore	Ind. White Ind. Pink Seneca	} Dec. 3	Feb. 11
	Yellow Monument Mefo Golden Mensa White Mensa Taffeta Masterpiece Beauregard	Yellow Mefo Jean Elizabeth Lollipop Shasta Linda Lou Dk. Br. Masterpiece	Monument Orchid Queen Yellow Shasta Little America Brocade Rubicon		
	Klondike Festival	Majorette Golden Pearson	Indian Head	} Dec. 3	Jan. 28

(1) No pinch method. When pinching, plant 3 weeks earlier and pinch on plant date.

\* Requires 10 less long days, plant 10 days later.





# CHRYSANTHEMUM CUTTINGS

## Chrysanthemum Flowering Schedule

Flowering Date	Variety			Plant (1) and Begin Lights	Lights Off
April 28	<b>Golden Herald Starbright</b>	<b>Gold Coast Buckskin</b>	<b>Yellow Daisy Reward</b>	Dec. 24	March 3
	<b>Ind. Yellow Queen's Lace Ind. Bronze</b>	<b>*Yellow Lace Betsy Ross</b>	<b>Ind. White Ind. Pink</b>		
	<b>Encore Seneca</b>	<b>Halo</b>	<b>Kolowa</b>	Dec. 24	Feb. 25
	<b>Yellow Monument Monument</b>	<b>Yellow Mefo Mefo</b>	<b>Yellow Queen Jean Elizabeth</b>		
	<b>Lollipop Little America Thyra Bronze Thyra</b>	<b>Yellow Shasta Taffeta Masterpiece Dk. Br. Masterpiece</b>	<b>Shasta Linda Lou Rubicon Beauregard</b>	Dec. 24	Feb. 18
May 14	<b>Golden Pearson</b>	<b>Majorette</b>	<b>Klondike</b>	Dec. 24	Feb. 11
	<b>Gold Coast Starbright</b>	<b>Golden Herald Buckskin</b>	<b>Yellow Daisy Reward</b>	Jan. 15	March 19
	<b>Ind. Yellow Queen's Lace Ind. Bronze</b>	<b>*Yellow Lace Betsy Ross</b>	<b>Ind. White Ind. Pink</b>		
	<b>Encore Ballerina</b>	<b>Kolowa</b>	<b>Halo</b>	Jan. 15	March 12
	<b>Yellow Monument Monument</b>	<b>Yellow Mefo Mefo</b>	<b>Yellow Queen Jean Elizabeth</b>		
May 28	<b>Lollipop Little America Thyra Bronze Thyra Rubicon</b>	<b>Yellow Shasta Taffeta Masterpiece Dk. Br. Masterpiece</b>	<b>Shasta Linda Lou Chevron Beauregard</b>	Jan. 15	March 5
	<b>Golden Pearson</b>	<b>Klondike</b>	<b>Majorette</b>	Jan. 15	Feb. 26
	<b>Blazing Gold</b>	<b>Silver Sheen</b>	<b>Yellow Daisy Buckskin</b>	Feb. 5	April 2
	<b>Gold Coast Starbright Reward</b>	<b>Golden Herald Pinocchio</b>			
	<b>Yellow Lace</b>	<b>Queen's Lace</b>	<b>*Betsy Ross</b>	Feb. 5	March 26
June 11	<b>*Crescendo Encore Ballerina</b>	<b>*Mary L. Hall Kolowa</b>	<b>*Sea Gull Halo</b>		
	<b>Yellow Queen Jean Elizabeth</b>	<b>Yellow Monument Monument</b>	<b>Yellow Mefo Mefo</b>	Feb. 5	March 19
	<b>Lollipop Little America Thyra Bronze Thyra Beauregard</b>	<b>Yellow Shasta Taffeta Masterpiece Dk. Br. Masterpiece</b>	<b>Shasta Linda Lou Chevron Rubicon</b>		
	<b>Golden Pearson</b>	<b>Klondike</b>	<b>Majorette</b>	Feb. 5	March 12
	<b>Blazing Gold</b>	<b>Silver Sheen</b>	<b>Yellow Daisy Pinocchio</b>	Feb. 26	April 16
June 11	<b>Gold Coast Starbright Buckskin</b>	<b>Golden Herald Songster Reward</b>			
	<b>Good News</b>	<b>Yellow Lace</b>	<b>Queen's Lace</b>	Feb. 26	April 9
	<b>*Betsy Ross</b>	<b>*Mary L. Hall Kolowa</b>	<b>*Sea Gull Halo</b>		
	<b>*Crescendo Encore Ballerina</b>	<b>Yellow Monument Monument</b>	<b>Yellow Mefo Mefo</b>	Feb. 26	April 2
	<b>Yellow Queen Jean Elizabeth</b>	<b>Yellow Shasta Thyra Beauregard</b>	<b>Shasta Linda Lou Bronze Thyra</b>		
	<b>Golden Pearson</b>	<b>Klondike</b>	<b>Majorette</b>	Feb. 26	March 26

(1) No pinch method. When pinching, plant 3 weeks earlier and pinch on plant date.

\* Requires 10 less long days, plant 10 days later.





## Chrysanthemum Flowering Schedule

Flowering Date	Variety			Plant (1) and Begin Lights	Lights Off	
June 25	Blazing Gold	Silver Sheen		March 19	April 30	
	Gold Coast Songster	Golden Herald Reward	Yellow Daisy Buckskin			
	Good News	*Betsy Ross		March 19	April 25	
	*Crescendo	*Mary L. Hall Kolowa	Encore Halo			
	*Sea Gull					
	Yellow Queen Mefo	Jean Elizabeth	Monument	March 19	April 16	
Lollipop Little America Beauregard	Yellow Shasta Linda Lou Chevron	Shasta Rubicon				
July 9	Blazing Gold	Silver Sheen		April 9	May 1	
	Gold Coast Songster	Golden Herald Reward	Yellow Daisy Buckskin			
	Good News	*Betsy Ross		April 9	May 1	
	*Crescendo Encore	*Mary L. Hall Kolowa	*Sea Gull Halo			
	Yellow Queen Mefo	Jean Elizabeth	Monument	April 9	May 1	
	Lollipop Little America Beauregard	Yellow Shasta Linda Lou Chevron	Shasta Rubicon			
July 23	Blazing Gold	Silver Sheen		Plant	Pinch	Shade
	Gold Coast Songster Reward Pink Sprite	Golden Herald Popcorn Pink Dot Buckskin	Yellow Daisy Mary McArthur Jessie	April 2	April 23	May 28
	Good News Ivanhoe	*Betsy Ross	Detroit News	April 2	April 23	May 21
	*Crescendo Encore Ballerina	*Mary L. Hall Kolowa	*Sea Gull Halo			
	Yellow Queen Jean Elizabeth	Mefo	Monument	April 2	April 23	May 14
	Lollipop Little America Beauregard	Yellow Shasta Linda Lou Chevron	Shasta Rubicon			
Aug. 8	Blazing Gold	Silver Sheen		April 16	May 7	June 11
	Gold Coast Songster Reward Pink Sprite	Golden Herald Popcorn Pink Dot Buckskin	Yellow Daisy Mary McArthur Jessie			
	Good News Ivanhoe	*Betsy Ross	Detroit News	April 16	May 7	June 4
	*Crescendo Encore Ballerina	*Mary L. Hall Kolowa	*Sea Gull Halo			
	Yellow Queen Jean Elizabeth	Monument	Mefo	April 16	May 7	May 28
	Lollipop Little America Beauregard	Yellow Shasta Linda Lou Chevron	Shasta Rubicon			

(1) No pinch method. When pinching, plant 3 weeks earlier and pinch on plant date.

\* Requires 10 less long days, plant 10 days later.





# CHRYSANTHEMUM CUTTINGS

## Chrysanthemum Flowering Schedule

Flowering  
Date

Variety

Plant

Pinch

Shade

Aug. 20	Blazing Gold Gold Coast Sunray Mary McArthur Pink Sprite	Silver Sheen Golden Herald Popcorn Pink Dot Bronze Dot	Yellow Daisy Reward Jessie Buckskin	} April 30	May 21	June 25
	Good News Queen's Lace	Yellow Lace Detroit News	*Betsy Ross Ivanhoe			
	*Crescendo Encore Ballerina	*Mary L. Hall Kolowa	*Sea Gull Halo			
	Yellow Queen Mefo	Jean Elizabeth	Monument	} April 30	May 21	June 11
	Lollipop Little America Rubicon Paragon	Yellow Shasta Thyra Beauregard	Shasta Linda Lou Chevron			
	Blazing Gold Gold Coast Sunray Carolyn Yosick Pink Sprite Buckskin	Silver Sheen Golden Herald Popcorn Pink Dot Bronze Dot	Yellow Daisy Mary McArthur Jessie Reward	} May 14	June 4	July 9
Sept. 3	Good News Ind. White Ind. Pink Ivanhoe	Ind. Yellow *Betsy Ross Ind. Bronze	Yellow Lace Queen's Lace Detroit News			
	*Mary L. Hall Kolowa Seneca	Encore Halo Red Daisy	*Sea Gull Ballerina Navaho			
	Yellow Queen Jean Elizabeth	Yellow Monument Monument	Yellow Mefo Mefo	} May 14	June 4	June 25
	Lollipop Shasta Thyra Soprano Rubicon Chevron	Yellow Shasta Moonglow Linda Lou Beauregard Paragon Dk. Br. Masterpiece	Forty Niner Little America Masterpiece Sylvanna Bronze Thyra			
	Majorette	Indian Head	Festival			
	Blazing Gold Gold Coast Sunray Carolyn Yosick Pink Sprite	Silver Sheen Golden Herald Reward Pink Dot Bronze Dot	Yellow Daisy Mary McArthur Jessie Buckskin	} May 28	June 18	July 23
	Good News Ind. White Ind. Pink Ivanhoe	Ind. Yellow *Betsy Ross Ind. Bronze	Yellow Lace Queen's Lace Detroit News			
	*Mary L. Hall Kolowa Navaho Bittersweet	Encore Halo Red Daisy	*Sea Gull Ballerina Seneca			
Sept. 17	Yellow Queen Jean Elizabeth Orchid Queen	Yellow Monument Monument Dk. Orchid Queen	Yellow Mefo Mefo	} May 28	June 18	July 9
	Lollipop Yellow Mensa Little America Linda Lou Brocade Beauregard Paragon	Yellow Shasta Shasta White Mensa Masterpiece Taffeta Dk. Br. Masterpiece Bronze Thyra	Forty Niner Moonglow Thyra Soprano Rubicon Chevron Sylvanna			
	Golden Pearson Klondike Majorette Rusticon	Harvester Goldsmith Festival	Thanks. Pink Snowflurry Indian Head			

\* Requires 10 less long days, plant 10 days later.





## Chrysanthemum Flowering Schedule

Flowering Date	Variety			Plant	Pinch	Shade
Oct. 1	Blazing Gold Gold Coast Sunray Carolyn Yosick Bronze Dot	Silver Sheen Golden Herald Reward Pink Dot Buckskin	Yellow Daisy Mary McArthur Jessie	June 4	June 25	Aug. 6
	Good News Ind. White Ind. Pink	Ind. Yellow *Betsy Ross Ind. Bronze	Yellow Lace Queen's Lace Detroit News			
	*Mary L. Hall Kolowa Navaho Bittersweet	Encore Halo Red Daisy	*Sea Gull Ballerina Seneca			
	Yellow Queen Jean Elizabeth Orchid Queen	Yellow Monument Monument Dk. Orchid Queen	Yellow Mefo Mefo			
	Lollipop Yellow Mensa Little America Linda Lou Brocade Beauregard Paragon	Yellow Shasta Shasta White Mensa Masterpiece Taffeta Dk. Br. Masterpiece Br. Thyra	Forty Niner Moonglow Thyra Soprano Rubicon Chevron Sylvanna	June 4	June 25	July 23
	Golden Pearson Klondike Majorette Rusticon	Harvester Goldsmith Festival	Thanks. Pink Snowflurry Indian Head			
	Gold Coast Sunray Carolyn Yosick Bronze Dot	Golden Herald Reward Pink Dot	Yellow Daisy Mary McArthur Jessie			
	Good News Ind. White Ind. Pink	Ind. Yellow *Betsy Ross Ind. Bronze	Yellow Lace Queen's Lace Detroit News			
Oct. 15	*Mary L. Hall Kolowa Navaho Bittersweet	Encore Halo Red Daisy	*Sea Gull Ballerina Seneca	June 19	July 9	Aug. 13
	Yellow Queen Jean Elizabeth Orchid Queen	Yellow Monument Monument Dk. Orchid Queen	Yellow Mefo Mefo			
	Lollipop Yellow Mensa Little America Linda Lou Brocade Beauregard Paragon	Yellow Shasta Shasta White Mensa Masterpiece Taffeta Dk. Br. Masterpiece Br. Thyra	Forty Niner Moonglow Thyra Soprano Rubicon Chevron Sylvanna			
	Golden Pearson Klondike Majorette Rusticon	Harvester Goldsmith Festival	Thanks. Pink Snowflurry Indian Head			
				June 19	July 9	Aug. 20
				June 19	July 9	Aug. 13
				June 19	July 9	Aug. 6
				June 19	July 9	July 30

\* Requires 10 less long days, plant 10 days later.





# CHRYSANTHEMUM CUTTINGS

## *Chrysanthemum Flowering Schedule*

Flowering Date	Variety		Plant	Pinch	Begin Lights	Lights Off
Nov. 19	Ind. Yellow Ind. White Ind. Bronze	Yellow Lace Queen's Lace Ind. Pink	July 9	July 30	Aug. 10	Sept. 17
	Yellow Queen Orchid Queen	Jean Elizabeth				
Dec. 3	Ind. Yellow Ind. White Ind. Pink	Yellow Lace Queen's Lace Ind. Bronze	July 23	Aug. 13	Aug. 10	Oct. 1
	Yellow Queen Yellow Mefo Mefo	Yellow Monument Jean Elizabeth Orchid Queen	July 23	Aug. 13	Aug. 10	Sept. 24
	Golden Pearson Chattanooga	Harvester Thanks. Pink	July 23	Aug. 13	Aug. 15	Sept. 17
Dec. 17	Ind. Yellow Ind. White Ind. Pink	Yellow Lace Queen's Lace Ind. Bronze	Aug. 6	Aug. 27	Aug. 10	Oct. 15
	Yellow Queen Yellow Mefo Mefo	Yellow Monument Jean Elizabeth Orchid Queen	Aug. 6	Aug. 27	Aug. 10	Oct. 8
	Golden Pearson Chattanooga	Harvester Thanks. Pink	Aug. 6	Aug. 27	Aug. 15	Oct. 1

*Wrapped with Cellophane*



*Amber Saran Cloth House —  
Note Overhead Irrigation Line*





## *Chrysanthemum Pot Plant Culture*

Well-grown, short chrysanthemum potted plants have been finding a ready market. To grow short, stocky plants it is necessary to follow definite cultural directions. We offer the following suggestions for your consideration:

### **Soil**

A good fibrous silt loam directly from the field to which one-quarter by volume of well-rotted manure has been added, plus an application of super phosphate will give excellent results. Steam sterilization will eliminate all weed seeds and increase the granulation of the soil. Wait seven days before planting rooted cuttings into steam sterilized soil.

### **Temperature**

Always grow in a 60° house as lower temperature will cause blindness. After color shows, finish in a cooler temperature if possible, this would be advisable for Easter or Mother's Day crop.

### **Watering and Humidity**

After planting, water thoroughly to set the soil around the roots. Repeat this type of watering when the soil gets on the dry side. Organic matter in the soil will facilitate watering and will tend to avoid extreme fluctuations in moisture supply. Overwatering will rot the roots and cause a yellowing of the foliage. For best results grow all potted chrysanthemums under glass. Keep humidity in house by wetting down benches and walks with an occasional syringing over the plants.

### **Pinching**

Two pinches are sufficient for a good short compact pot plant. The first pinch should be 15 days after planting followed by the second pinch 21 days after the first. If a third pinch is wanted wait another 21 days after the second pinch. When shading potted plants, two pinches are sufficient while those flowered for the natural season are often pinched three times. This means that rooted cuttings should be planted about July 15 for those who wish to flower the plants normally.

### **Fertilizing**

The foliage should retain a bright green luster throughout the life of the plant, and the lower leaves should never be allowed to lose their color and turn to a light green due to low fertility. A strong well grown pot plant is a well fed plant. Pot plants should be fed more often than those grown in a bench as constant leaching will lower the nutrient level in pots faster than under bench culture. Several light feedings should be made with a complete fertilizer such as Electra. This can safely be used at the rate of 1 teaspoonful per 6" pot. Last feeding should be made when the buds are forming.

### **Diseases and Insects**

A regular spraying or fumigation with **Parathion** will control red spider, thrip, aphid and leaf tyer, the most troublesome insects affecting pot plants. If by chance plants are grown out of doors, weekly spraying with **Zerlate** or **Fermate** will prevent leaf spot.

### **Shading and Disbudding**

Same procedure as for cut flower crop. Black cloth treatment should continue until the buds are taken. The last pinch is usually taken at the same date short day treatment is started. However, if you are troubled with too tall of potted plants delay the last pinch until 5 or even 10 days after starting the shading program. Disbud each shoot to one bud when buds are large enough to handle.





## Chrysanthemum Pot Plant Culture

**Pot, Pinch and Short Day.** Plant four or five cuttings in a 6-inch pot, pinch and give short day treatment the same day. This method is recommended for potted plants from January to June. It is a very rapid way to grow potted plants out of season.

Blazing Gold will bloom in 8 weeks, Granite State and Queen of Pinks require 9 weeks while Bonaffon Deluxe and Little America will bloom in 10 weeks from the time short day treatment is started.

We suggest that those plants that are planted between October 15 and January 15 be given 10 days of additional light before they are pinched and given short day treatment. This additional light will stretch the plants and make a more desirable height potted plant when in bloom.

**Single Pinch Method.** Plant four or favorably five cuttings in a 6-inch pot. Allow the plants to grow 15 days and then pinch, giving short day treatment the day pinch was made. If this method is used between August 10 to April 15, the 15 days prior to pinching should have additional light. Good quality plants are produced and it will shorten the time necessary to produce a finished plant by three or four weeks as compared with a two pinch plant.

**Two Pinch Method.** Most common method of growing early shaded pot plants today. Plant three or four cuttings in a 6-inch pot. Pinch the plants the first time 15 days after planting and wait 21 days and pinch the second time. Short day treatment should start at the time of the second pinch.

**Three Pinch Method.** This method is used extensively where plants are flowered naturally without use of black cloth covering. Plant similarly to two pinch method and make the first and second pinches in the same way. The third and last pinch should be made on dates suggested under the "Last Pinch" heading in the pot plant variety list. Larger plants result when pinched three times.

**Modified Three Pinch Method.** Plant three or four cuttings to a 6-inch pot. Pinch the following day after planting. Pinch second time 14 to 21 days later, and the third pinch should be 21 days after the second pinching. The modified method can be carried out as fast as the regular two pinch method, the only difference is a larger plant with more blooms.

Last pinch has generally been given the day black cloth treatment is to start. If you are troubled with plants that are too tall, it is suggested that you "last pinch" 5 or maybe 10 days after the shading program was started. Varieties such as Yellow Lace, Queen's Lace should always be pinched for the last time 10 days after starting the black cloth treatment.

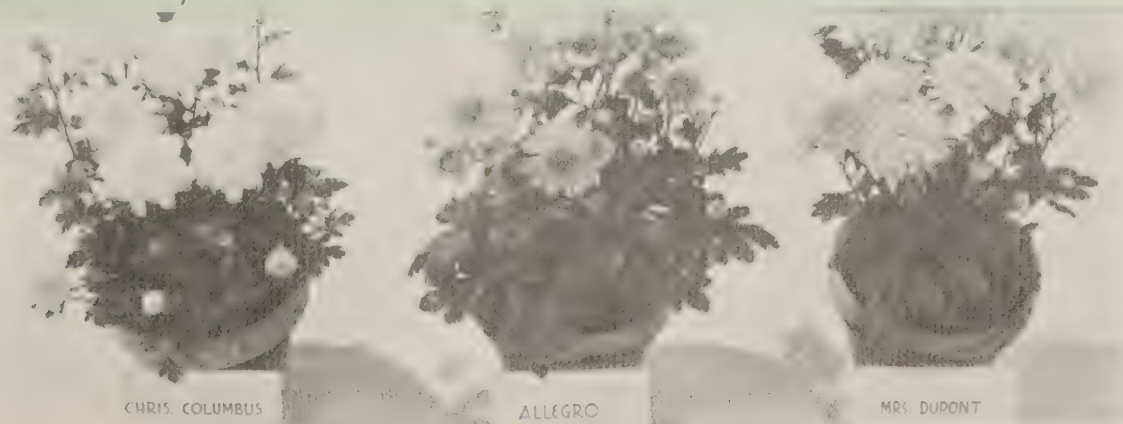
### Hardy Mum Pot Plants for Mother's Day.

Hardy mum plants in full bloom make ideal potted plants for Mother's Day. Dr. A. M. Kofranek, Cornell University suggests that three cuttings be planted into a six-inch pot. If smaller plants are wanted plant one cutting into a four-inch pot. After these pot plants are through flowering they should be cut back within three inches of the soil level and planted into the garden. These same plants will bloom again in the fall.

The following suggestions are given for 1951 culture.

1. Plant rooted cuttings from lighted stock February 23. Grow under additional light from February 23 to March 1.
2. Give normal short days from March 1 to April 1.
3. Soft pinch on March 15.
4. Shade the plants with black cloth each night starting April 1.
5. Discontinue shading April 20.
6. Shade the plants with black cloth from 5 P.M. to 8 A.M. from May 1 until bloom.

The best varieties were Chris Colombus, Allegro, Mrs. DuPont, Apricot Glow, Lavender Lady, Heather Bloom and Early Gold.



Hardy Pot Mums for Mother's Day





## Pot Plant Continuous Blooming Schedule

### TWO PINCH METHOD

Flowering Date	Variety		Plant	Shade and Last Pinch Date
July 1	Gold Lode	Blazing Gold	}	April 1 May 6
July 10	Golden Glory	Granite State		
July 10	Gold Lode	Blazing Gold	}	April 15 May 20
July 20	Golden Glory	Granite State		
August 1	Gold Lode	Blazing Gold	}	May 1 June 5
August 10	Golden Glory	Granite State		
August 15	Gold Lode	Blazing Gold	}	May 15 June 20
August 25	Golden Glory Queen of Pinks	Granite State		
September 5	Bonnaffon Deluxe Little America	Gypsy		
September 1	Blazing Gold	}	June 1 July 5	
September 10	Granite State Queen of Pinks			Golden Glory Glitters
September 20	Bonnaffon Deluxe Little America			Gypsy Masterpiece
September 15	Blazing Gold	}	June 15 July 20	
September 25	Granite State Queen of Pinks			Golden Glory Glitters
October 5	Bonnaffon Deluxe Little America			Gypsy Masterpiece
October 1	Blazing Gold	}	July 1 August 5	
October 10	Granite State Queen of Pinks			Golden Glory Glitters
October 20	Bonnaffon Deluxe Little America			Gypsy Glitters
October 15	Blazing Gold	}	July 15 August 20	
October 25	Granite State Queen of Pinks			Golden Glory Glitters
November 5	Bonnaffon Deluxe Beautiful Lady Gypsy			Little America * Majorette Helen Frick





## *Insects and Their Control*

### APHIDS, OR PLANT LICE

All aphids are true sucking insects that insert their beaks through the surface of the leaf or stem and extract the juices from within.

**INJURY.** The feeding of aphids causes the plants to become sickly and stunted. The leaves curl inward, and when the flower terminal is infested the blooms will be deformed. Certain varieties of chrysanthemums are more susceptible to attack than others.

**CONTROL.** **Nicofume Fumigation** is an easy method of controlling the black aphid but will do very little to control the green or straw colored aphids. **Benzene Hexachloride** or **Parathion** is much more effective on the very resistant green or straw colored aphids. **Vapotone** is also effective when used at higher concentrations.

### CHRYSANTHEMUM LEAF MINER

The larva or maggot disfigures and weakens chrysanthemum plants by mining in the leaves. It may do considerable harm to the crop, but is easily held in check.

**INJURY.** The young maggots burrow in the leaf tissue, leaving the upper and lower surfaces intact. The tunnels are irregular and winding. White blotches are thus formed, which later turn brown, and the leaves may die.

**CONTROL.** As soon as it is noticed that any leaves are infested, they should be picked off and **Parathion** or **TEPP** aerosol bombs are very effective.

### CHRYSANTHEMUM MIDGE

The chrysanthemum midge is one of the most serious pests with which the grower has to deal. Under optimum conditions a little over a month is required to complete the life cycle from the egg to the adult. The eggs are reddish-orange in color and are usually deposited on the tender tips of the growth. Under favorable conditions the eggs hatch in about three days. The larva wanders about over the surface of the leaf for a day or two before finally penetrating into the leaf.

**INJURY.** The midge attacks all parts of the plant but prefers the tender growth. If the infestation takes place when the plants are small, they fail to grow, although if the plants are well developed when the infestation starts, the buds blight or are deformed and the plant is rendered unsalable.

**CONTROL.** Clean stock should be used wherever possible. Severely infested plants should be pulled up and burned. Nightly fumigation with **Calcium cyanide** or **Nicofume** pressure fumigators for 28 consecutive days will give good control. **Nicotine Dust** is also useful in keeping the plants covered and is especially useful when used in combination with fumigation. **Sodium selenate** is effective when applied in liquid form 1/4 gram per square foot after plants are well established. **Parathion** either as aerosol or spray is very effective.



*Aphids*



*Midge Injury to Leaves and Buds*





## *Insects and Their Control*

### CORN EAR WORM

The corn ear worm is a green to brown, nearly smooth caterpillar, often mistaken for a cutworm when found within the buds or on the open flowers.

**INJURY.** It is very destructive to the opening buds, for it feeds on their petals and other parts, deforming if not entirely ruining the flowers.

**CONTROL.** If the attacked plants are blooming, spraying is out of the question, but thorough treatment with a 3 or 5% **D.D.T.** dust is recommended. After they have worked their way into the buds and are found to be feeding on the open flowers, hand-picking is the only remedy. Spraying the plants with **Deenate 50W** will control them before the color shows. **Parathion** fumigation will also keep them under control.

### CUTWORMS

The larva is dull colored and from one to more than two inches in length. They are most active at night, and usually spend the day coiled up just under the surface of the soil at the base of the plant. They should not be confused with the corn ear worm which cannot be controlled by poison baits.

**INJURY.** Cutworms obtain their food by biting out sections of the leaf, stem or bud. Various species attack different parts of the plant. The one that is most damaging climbs to the top of the stem and eats into the flower buds.

**CONTROL.** Those cutworms that feed on the foliage can best be controlled with **Deenate 50W** spray using 1½ pounds to 100 gallons of water. **Parathion** has been suggested as a good control measure, more effective as a spray.

### GREENHOUSE LEAF TYER

It gets its name from its habit of spinning light webs inclosing two or more leaves or tying together the parts of a single leaf. This caterpillar is very active, and when disturbed will wriggle off the leaf, often backwards, lowering itself on a silk-like strand.

**INJURY.** When first hatched, the larvae eat out shallow holes on the under side of the leave. As they grow, they enlarge these holes but usually do not cut through to the upper surface. The result is that the leaves become skeletonized.

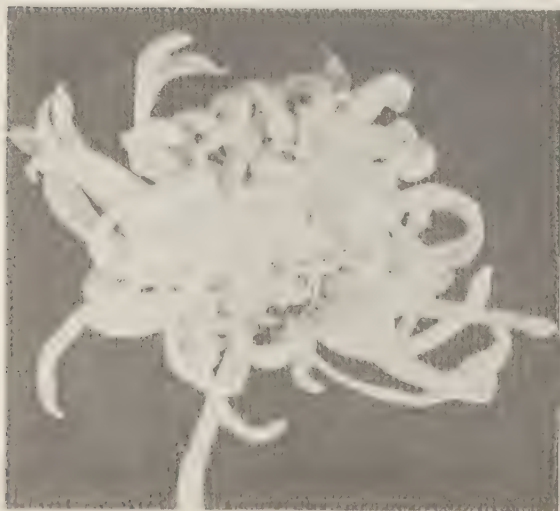
**CONTROL.** The best poison to control the larvae is **Deenate 50W**, either in the form of a dust or a spray. For liquid spray use 1½ pounds of **Deenate 50W** to 100 gallons of water. Regular fumigations with **Parathion** will keep the leaf tyer under control.

### MEALY BUGS

Mealy bugs are small, sluggish, whitish, soft bodied insects, measuring up to ¼ inch long, found in clusters on the undersides of the leaves or in the leaf axils.

**INJURY.** This pest sucks the juices from the stems and leaves, discoloring and deforming the foliage.

**CONTROL.** **Parathion** is the most effective. Regular fumigations with **Calcium Cyanide** will aid in keeping mealy bugs in check.



*Corn Ear Worm Damage*



*Leaf Tyer*



*Mealy Bugs*





## *Insects and Their Control*

### MITES

Cyclamen mite and broad mite are often found on the same plants at the same time. Broad mite could pass through a complete generation in 4 to 5 days at 70 to 80 degrees while the Cyclamen mite will take 4 to 5 times longer.

**INJURY.** Infested leaves become deformed, curl from the outside inward, and wrinkle so that pockets and pit-like depressions are formed. When the infestation is severe, the mites collect about the buds, causing them to blight.

**CONTROL.** **Parathion** dusts or sprays are more effective than bombs. **Vaportone** containing **HETP** has given good control. **Sodium Selenate** is effective when applied in liquid form  $\frac{1}{4}$  gram per square foot after plants are well established. **P40** used at the rate of 3 pounds per hundred square feet is another way to use sodium selenate.

### RED SPIDERS

There are several species of red spiders that attack the chrysanthemum. They vary in color through yellow, orange and red. The body is oval in outline and bears eight well-developed legs.

**INJURY.** Red spiders pierce the epidermis of the leaf and draw the liquid contents from the cells, causing the leaf to turn pale around the injured portion. They prefer to collect on the under surfaces of the leaves, which they cover with silken threads.

**CONTROL.** **Parathion** or **TEPP** bombs are most effective and easiest to apply. **HEPT** or **TEPP** contained in insecticides such as **Vaportone** are by far the most effective on red spider. Moisture is detrimental to the development of the red spiders and frequent syringing washes them and their eggs off the plants. **Sodium selenate** is effective when applied in liquid form  $\frac{1}{4}$  gram per square foot or **P40** at 3 pounds per 100 sq. ft. after plants are well established, especially desirable for cloth house operators, will also control foliar nematodes.

### SYMPHYLIDS

Symphylids are small white creatures about  $\frac{1}{8}$  to  $\frac{3}{16}$  inches long. About 40-60 days are necessary for the completion of the life cycle.

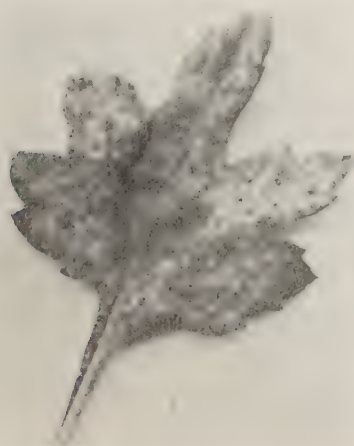
**INJURY.** Symphylids destroy the fine root hairs and small rootlets, thus stunting the plants and often killing them outright.

**CONTROL.** If possible construct raised bench. Steam sterilization has given fair control. **Dowfume G** or **Dow MC2** when properly applied will give good control. **Isotox** (15% benzene hexachloride) or 15% wettable powder of **Parathion** has been used as follows with no apparent damage: Place 3 ounces in 30 gallons of water and apply to 100 sq. ft. of bench space. Several applications 2-3 weeks apart may be necessary for a complete clean-up.

### SOWBUGS

**INJURY.** Sowbugs often become so plentiful in the greenhouse that they eat the newly planted cuttings at the base.

**CONTROL.** Any of the many poison baits will give partial control but a complete spraying with **DDT** under the benches has given excellent control. **Deenate 50W** will give complete control.



*Red Spider Injury*



*Symphylids Enlarged 10x*





## *Insects and Their Control*

### TARNISHED PLANT BUGS

The tarnished plant bug or sting fly comes into the greenhouse through open doors and ventilators in late summer or early fall and does considerable harm to this crop. Chrysanthemums growing in the open are frequently affected. Varieties such as Mary L. Hall and Sea Gull are attacked to a greater extent than other varieties.

**INJURY.** It has sucking mouth parts and obtains its food by inserting its long, slender beak into the plant tissues and sucking up the contents of the injured cells, apparently injecting saliva, which causes the death of the tissue in the immediate vicinity. The stem is often slightly bent and the terminal growth is malformed because of this injection.

**CONTROL.** Early morning spraying or dusting with any of the pyrethrum materials will kill those bugs that are present but this will have to be done each day for complete eradication. **Deenate 50W** has been giving fair control but again this insecticide is best used as a contact. **Parathion** fumigation will control this insect in the greenhouse.

### TERMITES

Termites are not ants, though often called white ants. The food of termites is wood or cellulose. Soil inhabiting forms are the most common in the greenhouse.

**INJURY.** Termites sometimes injure chrysanthemum plants by working up the center of the plant and hollowing out the stem. This injury will eventually kill the plant.

**CONTROL.** **Isotox** (15% benzene hexachloride) or the 15% wettable powder of **Parathion** has been used as follows with no apparent damage: Place 3 ounces in 30 gallons of water and apply to 100 sq. ft. of bench space.

### THRIPS

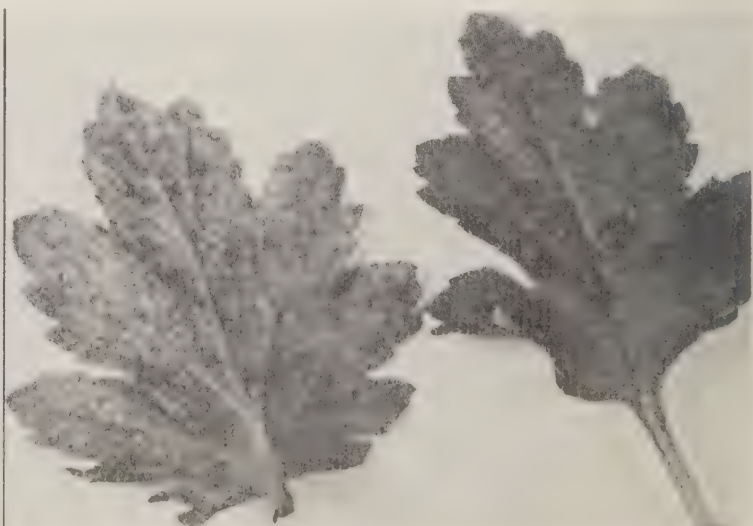
The chrysanthemum is usually attacked by one or more species of thrips. These small, narrow-bodied, active insects which range in color from yellow to brown or almost black, injure both the leaves and the blossoms.

**INJURY.** Thrips have mouth parts that are fitted for piercing and scraping the leaf surface and for sucking the juices and other cell contents. The upper surface of the foliage is covered with whitish blotches while minute black specks appear on the lower surface. Unless a constant watch is kept on the plants, and control measures properly executed, thrips are capable of causing severe injury within a short time.

**CONTROL.** **Deenate 50W** used at the rate of 1-1½ pounds to 100 gallons of water is a very effective control. Other insecticides containing **Benzene Hexachloride** are also recommended. **Parathion** will control the chrysanthemum and onion thrips.



*Tarnished Plant Bug*



*Thrip Injury*





## Pests and Their Control

### FOLIAR NEMATODE

The spread of this pest has been very rapid in recent years owing to the increased trade in chrysanthemums, and the ease with which the nematode is transported in plants and cuttings. Too few growers have become familiar with this pest and consequently no effort has been put forth to control it.

**SYMPTOMS.** The leaves attacked become blotched, turn at first greenish-yellow, then brownish, later gray and finally black until the entire leaf dies and hangs down on the stem. Under conditions of high humidity, both in the open during a wet season and under glass owing to excessive watering, the spread of the pest may be extremely rapid.

**CONTROL.** **Sodium Selenate** applied in liquid form to the soil at the rate of  $\frac{1}{4}$  gram per square foot of bed area will give good control. Dissolve 1 pound of sodium selenate into  $4\frac{1}{2}$  gallons of water, then take one quart of this stock solution and add to 25 gallons of water and this should be applied on 100 square feet of bench surface. One pound of sodium selenate will treat 1800 square feet. The safest method is to make 2 applications at the  $\frac{1}{8}$  gram rate a week or so apart. **P40** applied at the rate of 3 pounds per 100 square feet has given good control. Wait 2 to 4 weeks after benching before applying. It is better to apply **P40** in 2 applications,  $1\frac{1}{2}$  pounds each time, 7 to 10 days apart. The latest findings show that foliar nematodes can be controlled with **Parathion** either as an aerosol or liquid spray.

## Diseases and Their Control

### COLLAR ROT or STEM ROT

**SYMPTOMS.** The area of stem just at the soil level will show dark colorings first. The entire stem will be girdled and eventually the plant will turn yellow and die. Usually caused by the common damping off organisms such as *Rhiztonia*, *Fusarium* or *Pythium*. More prevalent when temperature and humidity are high.

**CONTROL.** Do not plant cuttings that have been affected with damping off. Remove all affected plants when noticed. Do not keep the soil too moist. Run a lower humidity if possible. Plant cuttings no deeper than depth they were in propagating media as too deep planting will hasten development. Have soil well prepared as compact soils will also encourage trouble.

### MILDEW

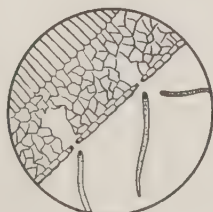
**SYMPTOMS.** Whitish powdery growth on upper surface of leaves.

**CONTROL.** Spray at regular weekly intervals with a good **Wetttable Sulfur**, 1 lb. per 100 gallons of water to which a good commercial spreader has been added. **Fermate** or **Zerlate**, 1 ounce to 4 gallons of water is effective.

### BIOLOGY OF THE FOLIAR NEMATODE



Eelworms becoming active and commencing their migration from the ground up the outside of the stem and leaf-stalks into the basal leaves.  
(Spring)



Eelworms entering leaf through the stomata.  
(Spring-Summer)



Eelworms feeding and breeding in leaves and migrating upwards from leaf to leaf.  
(Spring-Autumn)



Eelworms overwintering in soil, dead leaves and in basal buds.  
(Winter)





## *Diseases and Their Control*

### RAY BLIGHT OR FLOWER SPOT

**SYMPTOMS.** The petals first show little spots and then the entire petal begins to rot. May be caused by *Botrytis* or *Ascochyta*. *Botrytis* is spread primarily by splashed water.

**CONTROL.** It is controlled by lowering humidity or spraying plants with **Parzate** when they show color. Spray with **Parzate** 1 ounce to 4 gallons of water plus  $\frac{1}{3}$  teaspoonful of **Du Pont Spreader Sticker** on the flower from below and above as soon as color shows and continue at 5-day intervals.

### ROOT KNOT NEMATODE

**SYMPTOMS.** The nematodes or eelworms bore into the roots of the plants and cause knots or galls to develop on the root systems. As a result the plants are weak, yellowish and stunted in growth.

**CONTROL.** Steam sterilization of the soil is very effective in eliminating the nematodes. **Dowfume G** is a good soil fumigation that will kill nematodes and not do any damage to the surrounding plants.

### RUST

**SYMPTOMS.** Chocolate brown powdery pustules on lower surface of the leaves.

**CONTROL.** **Fermate**, **Liquid Parzate** or **Parzate**, 1 ounce to 4 gallons of water is most effective.

### SEPTORIA LEAF SPOT OR LEAF BLIGHT

**SYMPTOMS.** Distinct circular spots on the leaves. These are greyish brown in color and become brittle in the center. Affected leaves may turn yellow and die. More prevalent in the open. Some varieties are more susceptible than others. Sea Gull is very susceptible.

**CONTROL.** When cuttings are received dunk the tops into **Fermate** (2 tablespoonfuls to a gallon). Spray the plants with **Zerlate** or **Fermate** 1 ounce to 4 gallons of water plus  $\frac{1}{3}$  teaspoonful of **Du Pont Spreader Sticker** every ten to fourteen days. Cloth house mums should be kept covered until the buds can be seen.

### VERTICILLIUM WILT OR SEIDEWITZ DISEASE

**SYMPTOMS.** Margins of leaves turn yellow and eventually wilt or dry up. This begins at base of plant and works up the stems. May affect one side of a stem or plant more than the other. No distinct spots. Varieties vary in resistance to this disease.

**CONTROL.** Verticillium wilt can be avoided by purchasing our disease free cuttings produced from cultured stock. It is also necessary to plant only into sterilized soil.



*Dodder Growing on Mums*



*Septoria Leaf Spot*





## *Diseases and Their Control*

### VIRUSES

The word "virus" is being referred to by the medical profession as well as by the florists and a short explanation of virus should prove of interest.

Viruses of the chrysanthemum are considered to be infectious; that is they can be transmitted to a healthy plant only by contact with an infected plant. They are not carried in the soil, water or air as are other diseases caused by fungi and bacteria.

The virus particles cannot be seen by the most powerful microscopes. Most of them will pass through bacterial filters. They respond like living organisms. They are always present in the sap of diseased plants and can be transmitted to a healthy plant through wounds or by mechanical means. The chrysanthemum is known to be affected with three viruses, namely yellows, mosaic and stunt. Stunt is the only one that has caused much concern. It has been found that aphids as well as mechanical handling will cause stunt to spread.

Once a plant is infected with a virus it usually always remains affected. To define a virus the following is as good as any: A virus is a protein which requires the presence of living cells for multiplication and it causes changes in the structure and functions of living cells.

### STUNT

**SYMPTOMS.** Young foliage may be paler than normal and has a tendency to more upright growth rather than growing at a wide angle with the stem. Diseased plants show stunting in growth after they have been in the soil a few weeks, and at maturity they may in some cases be less than half as tall as normal. Buds may form and blossoms open a week or 10 days ahead of those on healthy plants, although on some varieties stunted plants will bloom after the normal plants. Varieties possessing red pigment (the bronzes, pinks and reds) the red component of the color is badly bleached. With most varieties the blossoms are greatly reduced in size.

**CONTROL.** Knowing that stunt is a virus and that it can be spread by insects as well as manual operations the following recommendations for its control are necessary. (1) Select only the healthiest plants in June or July for stock purposes. (2) Use a sterile knife when removing cuttings or pinching the plants. (3) Keep all insects from these plants by isolation and use of good insecticides. (4) Rogue out all plants from time to time that look the least bit weaker. (5) Be careful not to bruise or handle the plants. (6) Use single plant selection procedure and keep case history on each clone. (7) Do not attempt to increase population until mother block of stock plants is entirely free from diseased plants for at least two generations.

Realizing that such a procedure to keep stock clean from stunt is very expensive and that all growers cannot carry out these control measures it is therefore, necessary for the propagators of chrysanthemum cuttings to carry out this extreme control measure.

### DODDER

**SYMPTOMS.** Dodder is a parasitic twiner, bearing clusters of small flowers. They are leafless annuals, with very slender yellow, white or red stems, which become attached to the plant by means of root-like suckers. Dodder is occasionally found on chrysanthemums and will cause a complete loss of crop.

**CONTROL.** Dodder is common in low, weedy places and may be carried into the greenhouse in the soil or manure. Soil sterilization is the only prevention. After dodder is attached to the plants remove the affected plants and burn.



*Stunt in Harvester*





## Large Flowering Varieties

Name	Last Pinch	Height	Select Bud	Flowering Date	50 per 50	100-250 per 100	300-450 per 100	500-950 per 100
<b>YELLOW</b>								
<b>Gold Lode</b> .....	July 5	Short	Aug. 25	Oct. 15	\$2.50	\$4.75	\$4.50	\$4.25
<b>Mrs. Kidder</b> .....	July 12	Med.	Aug. 30	Oct. 20	2.50	4.75	4.50	4.25
<b>Smith's Superlative</b> .....	July 12	Med.	Aug. 30	Oct. 25	3.00	5.70	5.40	5.10
<b>Yellow Ambassador</b> .....	July 12	Med.	Aug. 30	Oct. 25	3.00	5.70	5.40	5.10
<b>Yellow Bergen</b> .....	July 12	Med.	Aug. 30	Oct. 25	3.00	5.70	5.40	5.10
<b>Blazing Gold</b> .....	July 12	Short	Aug. 30	Oct. 25	3.00	5.70	5.40	5.10
<b>Sunglow</b> .....	July 12	Med.	Aug. 30	Oct. 25	2.75	5.20	4.95	4.65
<b>Golden Glory</b> .....	July 15	Short	Sept. 1	Nov. 1	3.00	5.70	5.40	5.10
<b>Good News</b> .....	July 15	Med.	Sept. 5	Nov. 5	3.00	5.70	5.40	5.10
<b>Indianapolis Yellow</b> .....	July 19	Med.	Sept. 5	Nov. 8	2.75	5.20	4.95	4.65
<b>Yellow Queen</b> .....	July 20	Med.	Sept. 8	Nov. 10	3.00	5.70	5.40	5.10
<b>Jamboree</b> .....	July 20	Med.	Sept. 8	Nov. 10	5.00	9.50	9.00	8.50
<b>Yellow Pockett</b> .....	July 20	Tall	Sept. 8	Nov. 10	3.00	5.70	5.40	5.10
<b>Yellow Monument</b> .....	July 25	Med.	Sept. 15	Nov. 15	2.75	5.20	4.95	4.65
<b>Honey Dew</b> .....	July 25	Med.	Sept. 15	Nov. 15	3.00	5.70	5.40	5.10
<b>Friendly Rival</b> .....	July 25	Med.	Sept. 20	Nov. 20	2.75	5.20	4.95	4.65
<b>Yellow Mefo</b> .....	July 25	Med.	Sept. 20	Nov. 20	3.00	5.70	5.40	5.10
<b>Purdue</b> .....	July 28	Med.	Sept. 25	Nov. 20	4.00	7.60	7.20	6.80
<b>Harvester</b> .....	July 28	Tall	Sept. 25	Nov. 23	3.00	5.70	5.40	5.10
<b>Marie De Petris</b> .....	July 28	Short	Sept. 25	Nov. 23	2.75	5.20	4.95	4.65
<b>Yellow Chattanooga</b> .....	July 28	Tall	Sept. 30	Nov. 25	2.75	5.20	4.95	4.65
<b>Golden Pearson</b> .....	July 28	Tall	Sept. 30	Nov. 25	2.50	4.75	4.50	4.25
<b>Sungold</b> .....	July 28	Short	Sept. 30	Nov. 25	2.75	5.20	4.95	4.65
<b>Golden Mrs. Ross</b> .....	July 31	Tall	Sept. 30	Dec. 3	2.50	4.75	4.50	4.25
<b>Golden Mistletoe</b> .....	Aug. 4	Med.	Oct. 5	Dec. 10	3.00	5.70	5.40	5.10
<b>Tobin's Yellow</b> .....	Aug. 10	Short	Oct. 5	Dec. 15	3.00	5.70	5.40	5.10
<b>Meteore</b> .....	Aug. 10	Med.	Oct. 5	Dec. 15	3.00	5.70	5.40	5.10

## WHITE

<b>Silver Sheen</b> .....	July 12	Med.	Aug. 30	Oct. 20	2.50	4.75	4.50	4.25
<b>Ambassador</b> .....	July 12	Med.	Aug. 30	Oct. 25	3.00	5.70	5.40	5.10
<b>Albatross</b> .....	July 16	Med.	Sept. 1	Nov. 1	3.00	5.70	5.40	5.10
<b>Betsy Ross</b> .....	July 26	Med.	Sept. 1	Nov. 1	2.75	5.20	4.95	4.65
<b>Indianapolis White</b> .....	July 19	Med.	Sept. 5	Nov. 8	2.75	5.20	4.95	4.65
<b>Jean Elizabeth</b> .....	July 20	Med.	Sept. 8	Nov. 10	3.00	5.70	5.40	5.10
<b>White Pockett</b> .....	July 20	Tall	Sept. 8	Nov. 10	3.00	5.70	5.40	5.10
<b>Monument</b> .....	July 22	Med.	Sept. 10	Nov. 15	2.75	5.20	4.95	4.65
<b>Marketeer</b> .....	July 25	Short	Sept. 15	Nov. 18	2.75	5.20	4.95	4.65
<b>Sterling</b> .....	July 25	Med.	Sept. 15	Nov. 18	4.00	7.60	7.20	6.80
<b>Mefo</b> .....	July 25	Med.	Sept. 20	Nov. 20	3.00	5.70	5.40	5.10
<b>Chattanooga</b> .....	July 28	Tall	Sept. 30	Nov. 25	2.50	4.75	4.50	4.25
<b>White Frick</b> .....	July 28	Short	Sept. 30	Nov. 25	2.75	5.20	4.95	4.65
<b>December Glory</b> .....	July 31	Med.	Sept. 30	Dec. 1	2.75	5.20	4.95	4.65
<b>December White</b> .....	July 31	Med.	Sept. 30	Dec. 5	3.00	5.70	5.40	5.10
<b>Margaret Moeller</b> .....	July 31	Short	Sept. 30	Dec. 5	2.75	5.20	4.95	4.65
<b>Snowline</b> .....	Aug. 4	Med.	Oct. 5	Dec. 10	5.00	9.50	9.00	8.50
<b>White Mistletoe</b> .....	Aug. 4	Med.	Oct. 5	Dec. 10	3.00	5.70	5.40	5.10
<b>Smith's Late White</b> .....	Aug. 10	Short	Oct. 5	Dec. 15	3.00	5.70	5.40	5.10

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 43 FOR QUANTITY PRICES.





# CHRYSANTHEMUM CUTTINGS

## Large Flowering Varieties

Name	Last Pinch	Height	Select Bud	Flowering Date	50 per 50	100-250 per 100	300-450 per 100	500-950 per 100
<b>BRONZE and RED</b>								
<b>Hilda Bergen</b> .....	July 12	Med.	Aug. 30	Oct. 25	\$3.00	\$5.70	\$5.40	\$5.10
<b>Glitters</b> .....	July 12	Short	Aug. 30	Oct. 28	3.00	5.70	5.40	5.10
<b>Ivanhoe</b> .....	July 12	Med.	Aug. 30	Nov. 1	3.00	5.70	5.40	5.10
<b>Apricot Queen</b> .....	July 12	Med.	Sept. 1	Nov. 1	3.00	5.70	5.40	5.10
<b>Detroit News</b> .....	July 15	Med.	Sept. 5	Nov. 5	3.00	5.70	5.40	5.10
<b>Indianapolis Bronze</b> .....	July 19	Med.	Sept. 5	Nov. 8	2.75	5.20	4.95	4.65
<b>Anaconda</b> .....	July 19	Tall	Sept. 10	Nov. 10	2.75	5.20	4.95	4.65
<b>Copperhead</b> .....	July 19	Med.	Sept. 10	Nov. 10	5.00	9.50	9.00	8.50
<b>Oakdale</b> .....	July 19	Med.	Sept. 10	Nov. 10	5.00	9.50	9.00	8.50
<b>Mrs. Roy</b> .....	July 22	Med.	Sept. 15	Nov. 15	3.00	5.70	5.40	5.10
<b>Garnet King</b> .....	July 22	Med.	Sept. 15	Nov. 15	3.00	5.70	5.40	5.10
<b>Gladys Pearson</b> .....	July 28	Tall	Sept. 30	Nov. 25	2.50	4.75	4.50	4.25
<b>Oak Leaf</b> .....	July 28	Tall	Sept. 30	Nov. 25	2.50	4.75	4.50	4.25
<b>Bronze Mistletoe</b> .....	Aug. 4	Med.	Oct. 5	Dec. 10	3.00	5.70	5.40	5.10

## PINK

<b>Pink Chief</b> .....	July 5	Tall	Aug. 25	Oct. 15	2.75	5.20	4.95	4.65
<b>Sugar Plum</b> .....	July 15	Med.	Sept. 1	Nov. 1	5.00	9.50	9.00	8.50
<b>J. W. Prince</b> .....	July 15	Short	Sept. 1	Nov. 5	2.75	5.20	4.95	4.65
<b>Indianapolis Pink</b> .....	July 19	Med.	Sept. 5	Nov. 8	2.75	5.20	4.95	4.65
<b>Dark Orchid Queen</b> .....	July 20	Med.	Sept. 8	Nov. 10	3.00	5.70	5.40	5.10
<b>Orchid Queen</b> .....	July 20	Med.	Sept. 8	Nov. 10	3.00	5.70	5.40	5.10
<b>Pink Pockett</b> .....	July 20	Tall	Sept. 8	Nov. 10	3.00	5.70	5.40	5.10
<b>Helen Frick</b> .....	July 28	Short	Sept. 30	Nov. 23	2.75	5.20	4.95	4.65
<b>Thanksgiving Pink</b> .....	July 28	Med.	Sept. 30	Nov. 23	2.75	5.20	4.95	4.65
<b>Edwin Seidewitz</b> .....	July 30	Tall	Sept. 30	Nov. 25	2.75	5.20	4.95	4.65
<b>Pink Mistletoe</b> .....	Aug. 4	Med.	Oct. 5	Dec. 10	3.00	5.70	5.40	5.10

## Odd Flowered Spider Types

Name	Last Pinch	Height	Select Bud	Flowering Date	50 per 50	100-250 per 100	300-450 per 100	500-950 per 100
<b>Kay Tashima—White</b> .....	July 12	Med.	Aug. 25	Oct. 25	\$3.50	\$6.50	\$6.25	\$6.00
<b>Red Spider—Magenta</b> .....	July 12	Med.	Aug. 25	Oct. 25	3.50	6.50	6.25	6.00
<b>Mrs. R. A. Walker—Lavender</b> .....	July 16	Med.	Sept. 5	Nov. 1	3.50	6.50	6.25	6.00
<b>Queen's Lace—White</b> .....	July 16	Med.	Sept. 5	Nov. 1	4.00	7.60	7.20	6.80
<b>Yellow Lace—Yellow</b> .....	July 16	Med.	Sept. 5	Nov. 1	4.00	7.60	7.20	6.80
<b>Lorraine—Yellow</b> .....	July 16	Med.	Sept. 5	Nov. 1	4.00	7.60	7.20	6.80
<b>Mamoru—Bronze</b> .....	July 16	Med.	Sept. 5	Nov. 5	2.75	5.20	4.95	4.65
<b>Mary Garden—Pink</b> .....	July 16	Med.	Sept. 5	Nov. 5	5.00	9.50	9.00	8.50
<b>White Rayonante—White</b> .....	July 16	Med.	Sept. 5	Nov. 5	3.00	5.70	5.40	5.10
<b>Yellow Rayonante—Yellow</b> .....	July 16	Med.	Sept. 5	Nov. 5	3.00	5.70	5.40	5.10
<b>Sue Sally Jones—Yellow</b> .....	July 16	Med.	Sept. 5	Nov. 5	3.50	6.50	6.25	6.00
<b>Peggy Ann Hoover—Pink</b> .....	July 19	Med.	Sept. 10	Nov. 10	3.50	6.50	6.25	6.00

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 43 FOR QUANTITY PRICES.





## Pompon and Decorative Varieties

Name	Last Pinch	Height	Size & Type	Flowering Date	50 per 50	100-250 per 100	300-450 per 100	500-950 per 100
<b>YELLOW</b>								
*Golden Herald.....	July 12	Med.	L. Dec.	Oct. 25	\$2.75	\$5.20	\$4.95	\$4.65
Gold Coast.....	July 12	Med.	Int. Pom.	Oct. 25	2.50	4.75	4.50	4.25
Yellow Dot.....	July 12	Med.	Int. Pom.	Oct. 25	2.75	5.20	4.95	4.65
Yellow Cassandra.....	July 12	Med.	Int. Pom.	Oct. 25	4.00	7.60	7.20	6.80
Yellow Arcadia.....	July 16	Med.	Int. Pom.	Oct. 28	2.75	5.20	4.95	4.65
Mary L. Hall.....	July 26	Tall	Int. Pom.	Nov. 1	2.50	4.75	4.50	4.25
*Yellow Doty.....	July 16	Med.	L. Pom.	Nov. 1	2.75	5.20	4.95	4.65
Yellow Sea Gull.....	July 16	Tall	Int. Pom.	Nov. 1	2.75	5.20	4.95	4.65
Barcarole.....	July 19	Med.	Int. Pom.	Nov. 5	2.75	5.20	4.95	4.65
Crescendo.....	July 29	Tall	Int. Pom.	Nov. 5	5.00	9.50	9.00	8.50
Constellation.....	July 19	Med.	Int. Dec.	Nov. 5	3.00	5.70	5.40	5.10
Nuggets.....	July 19	Short	S. Pom.	Nov. 5	2.25	4.25	4.00	3.80
Indagold.....	July 19	Med.	Int. Pom.	Nov. 7	3.50	6.65	6.30	5.95
Golden Chord.....	July 19	Med.	Int. Pom.	Nov. 10	4.00	7.60	7.20	6.80
Goldcup.....	July 19	Med.	Int. Pom.	Nov. 5	5.00	9.50	9.25	9.00
Princeton.....	July 22	Med.	Int. Dec.	Nov. 15	3.00	5.70	5.40	5.10
Forty-Niner.....	July 22	Med.	Int. Pom.	Nov. 15	4.00	7.60	7.20	6.80
Yellow Fellow.....	July 22	Med.	Int. Dec.	Nov. 15	2.75	5.20	4.95	4.65
Illini Brave.....	July 22	Med.	Int. Pom.	Nov. 16	4.00	7.60	7.20	6.80
Klondike.....	July 25	Med.	Int. Pom.	Nov. 20	5.00	9.50	9.00	8.50
Lollipop.....	July 25	Med.	Int. Pom.	Nov. 20	5.00	9.50	9.00	8.50
Trophy.....	July 28	Med.	Int. Pom.	Nov. 23	4.00	7.60	7.20	6.80
Illini Gold.....	July 28	Med.	Int. Pom.	Nov. 25	3.00	5.70	5.40	5.10
*Goldsmith.....	July 28	Med.	L. Dec.	Nov. 25	3.00	5.70	5.40	5.10
Sunnyside.....	July 28	Med.	Int. Pom.	Nov. 25	2.75	5.20	4.95	4.65
Yellow Cordova.....	July 28	Short	Int. Dec.	Nov. 30	2.75	5.20	4.95	4.65
Golden Harvest.....	July 28	Med.	S. Pom.	Dec. 1	4.00	7.60	7.20	6.80
Symmetry.....	July 31	Med.	Int. Pom.	Dec. 5	5.00	9.50	9.00	8.50
Omega.....	July 31	Med.	Int. Pom.	Dec. 5	3.00	5.70	5.40	5.10
Yellow Cameo.....	July 31	Med.	Int. Dec.	Dec. 5	2.75	5.20	4.95	4.65
Yellow Riviera.....	Aug. 2	Med.	Int. Dec.	Dec. 10	4.00	7.60	7.20	6.80
Sequin.....	Aug. 2	Med.	S. Pom.	Dec. 15	5.00	9.50	9.00	8.50
Shamrock.....	Aug. 2	Med.	L. Dec.	Dec. 15	5.00	9.50	9.00	8.50
December Gold.....	Aug. 2	Short	L. Pom.	Dec. 15	2.75	5.20	4.95	4.65
Vibrant.....	Aug. 4	Med.	L. Dec.	Dec. 20	2.75	5.20	4.95	4.65
Sunrise.....	Aug. 10	Med.	Int. Pom.	Dec. 24	5.00	9.50	9.00	8.50
Ivory Snow.....	Aug. 10	Med.	Int. Dec.	Dec. 25	3.00	5.70	5.40	5.10
Yellow Snow.....	Aug. 10	Med.	Int. Dec.	Dec. 25	2.50	4.75	4.50	4.25
Golden Anniversary.....	Aug. 10	Med.	Int. Pom.	Dec. 25	3.50	6.65	6.30	5.95
Siren.....	Aug. 10	Med.	Int. Pom.	Dec. 30	5.00	9.50	9.00	8.50
Yuleflame.....	Aug. 10	Med.	Int. Dec.	Dec. 30	3.50	6.65	6.30	5.95

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 43 FOR QUANTITY PRICES.

\*Responds to Disbudding.





# CHRYSANTHEMUM CUTTINGS

## Pompon and Decorative Varieties

Name	Last Pinch	Height	Size & Type	Flowering Date	50 per 50	100-250 per 100	300-450 per 100	500-950 per 100
<b>WHITE</b>								
<b>Pristine</b> .....	July 12	Med.	Int. Pom.	Oct. 20	\$4.00	\$7.60	\$7.20	\$6.80
<b>Minong</b> .....	July 12	Short	Int. Pom.	Oct. 20	2.50	4.75	4.50	4.25
<b>Popcorn</b> .....	July 12	Med.	Int. Pom.	Oct. 25	4.00	7.60	7.20	6.80
<b>Pinocchio</b> .....	July 12	Tall	S. Pom.	Oct. 25	2.75	5.20	4.95	4.65
<b>Songster</b> .....	July 12	Med.	Int. Pom.	Oct. 25	5.00	9.50	9.00	8.50
<b>Cottontop</b> .....	July 12	Med.	Int. Pom.	Oct. 25	3.00	5.70	5.40	5.10
<b>Arcadia</b> .....	July 16	Med.	Int. Pom.	Oct. 28	2.75	5.20	4.95	4.65
<b>Sea Gull</b> .....	July 26	Tall	Int. Pom.	Nov. 1	2.75	5.20	4.95	4.65
<b>*White Doty</b> .....	July 16	Med.	L. Pom.	Nov. 1	2.75	5.20	4.95	4.65
<b>Encore</b> .....	July 19	Med.	Int. Pom.	Nov. 5	4.00	7.60	7.20	6.80
<b>Rev. Bushnell</b> .....	July 19	Tall	Int. Pom.	Nov. 8	3.00	5.70	5.40	5.10
<b>Vesper</b> .....	July 19	Tall	Int. Pom.	Nov. 10	2.75	5.20	4.95	4.65
<b>Moonglow</b> .....	Aug. 2	Med.	Int. Pom.	Nov. 15	4.00	7.60	7.20	6.80
<b>Illini Snowdrift</b> .....	July 22	Med.	Oddity	Nov. 15	4.00	7.60	7.20	6.80
<b>Matchless</b> .....	July 25	Tall	Int. Pom.	Nov. 15	2.75	5.20	4.95	4.65
<b>Snowflurry</b> .....	July 25	Med.	S. Pom.	Nov. 20	5.00	9.50	9.00	8.50
<b>Seafoam</b> .....	July 25	Med.	Int. Pom.	Nov. 20	2.50	4.75	4.50	4.25
<b>Highbrow</b> .....	July 25	Med.	Int. Dec.	Nov. 20	5.00	9.50	9.00	8.50
<b>*Priscilla</b> .....	July 28	Tall	L. Pom.	Nov. 23	2.75	5.20	4.95	4.65
<b>Belray</b> .....	July 28	Med.	L. Pom.	Nov. 25	5.00	9.50	9.00	8.50
<b>Illini Bountiful</b> .....	July 28	Med.	L. Dec.	Nov. 25	4.00	7.60	7.20	6.80
<b>Crystal Beauty</b> .....	July 28	Med.	L. Pom.	Nov. 28	4.00	7.60	7.20	6.80
<b>Amy</b> .....	July 28	Med.	Int. Pom.	Nov. 28	4.00	7.60	7.20	6.80
<b>Paramount</b> .....	July 28	Med.	L. Pom.	Nov. 28	5.00	9.50	9.00	8.50
<b>Cordova</b> .....	July 28	Short	Int. Dec.	Nov. 30	2.75	5.20	4.95	4.65
<b>Cameo</b> .....	July 31	Med.	Int. Dec.	Dec. 5	2.75	5.20	4.95	4.65
<b>Spangles</b> .....	July 31	Med.	S. Pom.	Dec. 5	5.00	9.50	9.00	8.50
<b>*Silversmith</b> .....	Aug. 2	Med.	L. Dec.	Dec. 10	4.00	7.60	7.20	6.80
<b>Fortune</b> .....	Aug. 2	Med.	Int. Pom.	Dec. 10	5.00	9.50	9.00	8.50
<b>Starburst</b> .....	Aug. 2	Med.	Oddity	Dec. 12	5.00	9.50	9.00	8.50
<b>Snowcrest</b> .....	Aug. 2	Med.	Int. Pom.	Dec. 12	4.00	7.60	7.20	6.80
<b>Heirloom</b> .....	Aug. 4	Med.	L. Dec.	Dec. 20	5.00	9.50	9.00	8.50
<b>Revelation</b> .....	Aug. 10	Tall	Int. Pom.	Dec. 25	2.25	4.25	4.00	3.80
<b>Snow</b> .....	Aug. 10	Med.	Int. Dec.	Dec. 25	2.50	4.75	4.50	4.25

## PINK

<b>Jewell</b> .....	July 8	Short	S. Pom.	Oct. 15	3.00	5.70	5.40	5.10
<b>Carolyn Yosick</b> .....	July 8	Short	S. Dec.	Oct. 20	3.00	5.70	5.40	5.10
<b>Mary McArthur</b> .....	July 12	Tall	Int. Pom.	Oct. 25	3.50	6.65	6.30	5.95
<b>Pink Dot</b> .....	July 12	Med.	Int. Pom.	Oct. 25	2.75	5.20	4.95	4.65
<b>Jessie</b> .....	July 12	Med.	Int. Pom.	Oct. 25	2.75	5.20	4.95	4.65
<b>Pink Sprite</b> .....	July 12	Med.	S. Pom.	Oct. 25	4.00	7.60	7.20	6.80
<b>Dream Boat</b> .....	July 16	Med.	L. Pom.	Nov. 1	3.00	5.70	5.40	5.10
<b>*Lillian Doty</b> .....	July 16	Med.	L. Pom.	Nov. 1	2.75	5.20	4.95	4.65
<b>Dark Bulkeley</b> .....	July 19	Tall	Int. Pom.	Nov. 8	3.00	5.70	5.40	5.10

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 43 FOR QUANTITY PRICES.

\*Responds to Disbudding.





# CHRYSANTHEMUM CUTTINGS

## Pompon and Decorative Varieties

Name	Last Pinch	Height	Size & Type	Flowering Date	50 per 50	100-250 per 100	300-450 per 100	500-950 per 100
<b>PINK</b>								
*Thyra.....	July 19	Med.	L. Pom.	Nov. 10	\$2.75	\$5.20	\$4.95	\$4.65
*Masterpiece.....	July 22	Med.	L. Pom.	Nov. 15	2.50	4.75	4.50	4.25
Taffeta.....	July 22	Med.	Int. Dec.	Nov. 15	5.00	9.50	9.00	8.50
Pinky.....	July 25	Med.	Int. Dec.	Nov. 20	5.00	9.50	9.00	8.50
Minuet.....	July 28	Med.	Int. Pom.	Nov. 25	2.75	5.20	4.95	4.65
Orchis.....	July 28	Med.	Int. Pom.	Nov. 28	4.00	7.60	7.20	6.80
Riviera.....	Aug. 2	Med.	Int. Dec.	Dec. 10	2.75	5.20	4.95	4.65
Minstrel.....	Aug. 10	Med.	L. Pom.	Dec. 20	3.50	6.65	6.30	5.95
Defiance.....	Aug. 10	Med.	Int. Dec.	Dec. 20	4.00	7.60	7.20	6.80
Medallion.....	Aug. 10	Med.	Int. Dec.	Dec. 20	5.00	9.50	9.00	8.50

## BRONZE and RED

Firebird.....	July 12	Med.	Int. Dec.	Oct. 25	2.50	4.75	4.50	4.25
Bronze Dot.....	July 12	Med.	Int. Pom.	Oct. 25	2.75	5.20	4.95	4.65
Firefly.....	July 12	Med.	Int. Pom.	Oct. 25	5.00	9.50	9.00	8.50
Sparkler.....	July 12	Med.	Int. Pom.	Oct. 25	4.00	7.60	7.20	6.80
Seneca.....	July 16	Med.	Int. Dec.	Nov. 1	3.00	5.70	5.40	5.10
Red Seneca.....	July 16	Med.	Int. Dec.	Nov. 1	4.00	7.60	7.20	6.80
Beauregard.....	July 19	Med.	Int. Pom.	Nov. 1	5.00	9.50	9.00	8.50
Cassandra.....	July 19	Med.	Int. Pom.	Nov. 5	2.75	5.20	4.95	4.65
Red Rust.....	July 19	Med.	Int. Dec.	Nov. 5	3.00	5.70	5.40	5.10
Rubicon.....	July 19	Med.	L. Dec.	Nov. 5	4.00	7.60	7.20	6.80
*Magician.....	July 19	Med.	L. Pom.	Nov. 5	5.00	9.50	9.00	8.50
Samovar.....	July 19	Med.	Int. Dec.	Nov. 10	4.00	7.60	7.20	6.80
Navaho.....	July 19	Med.	Int. Dec.	Nov. 10	2.75	5.20	4.95	4.65
*Chanticleer.....	July 19	Med.	L. Pom.	Nov. 10	5.00	9.50	9.00	8.50
Chevron.....	July 19	Med.	Int. Pom.	Nov. 10	5.00	9.50	9.00	8.50
*Bronze Thyra.....	July 19	Med.	L. Pom.	Nov. 10	4.00	7.60	7.20	6.80
*Bronze Masterpiece.....	July 22	Med.	L. Pom.	Nov. 15	2.50	4.75	4.50	4.25
*Dark Bronze Masterpiece.....	July 22	Med.	L. Pom.	Nov. 15	4.00	7.60	7.20	6.80
Red Princeton.....	July 22	Med.	Int. Dec.	Nov. 15	3.00	5.70	5.40	5.10
Paragon.....	July 22	Med.	L. Pom.	Nov. 15	5.00	9.50	9.00	8.50
Illini Honey.....	July 22	Med.	Int. Pom.	Nov. 17	4.00	7.60	7.20	6.80
Illini Redhead.....	July 25	Med.	S. Pom.	Nov. 17	4.00	7.60	7.20	6.80
Illini Warrior.....	July 25	Med.	S. Pom.	Nov. 20	4.00	7.60	7.20	6.80
Legal Tender.....	July 25	Med.	Int. Dec.	Nov. 20	2.50	4.75	4.50	4.25
Rusticon.....	July 25	Med.	Int. Dec.	Nov. 20	2.75	5.20	4.95	4.65
*Bronze Goldsmith.....	July 28	Med.	L. Dec.	Nov. 25	3.00	5.70	5.40	5.10
Bronze Minuet.....	July 28	Med.	Int. Pom.	Nov. 25	3.50	6.65	6.30	5.95
Hindustan.....	July 28	Med.	Int. Pom.	Nov. 28	3.50	6.65	6.30	5.95
Falcon.....	July 28	Med.	L. Dec.	Dec. 1	5.00	9.50	9.00	8.50
Debonair.....	Aug. 2	Tall	L. Pom.	Dec. 10	2.75	5.20	4.95	4.65
Bronze Riviera.....	Aug. 2	Med.	Int. Dec.	Dec. 10	4.00	7.60	7.20	6.80
Pageantry.....	Aug. 2	Med.	Int. Dec.	Dec. 10	5.00	9.50	9.00	8.50
Bronze Minstrel.....	Aug. 10	Med.	L. Pom.	Dec. 20	4.00	7.60	7.20	6.80
Christmas Greeting.....	Aug. 10	Med.	L. Dec.	Dec. 20	5.00	9.50	9.00	8.50

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 43 FOR QUANTITY PRICES.

\*Responds to Disbudding.





# CHRYSANTHEMUM CUTTINGS

## Single-Daisy Type Varieties

Name	Last Pinch	Height	Size & Type	Flowering Date	50 per 50	100-250 per 100	300-450 per 100	500-950 per 100
<b>YELLOW</b>								
<b>Starbright</b> .....	July 12	Med.	Large	Oct. 25	\$4.00	\$7.60	\$7.20	\$6.80
<b>Yellow Daisy</b> .....	July 16	Med.	Int.	Nov. 1	3.00	5.70	5.40	5.10
<b>Sch. Yellow Daisy</b> .....	July 16	Med.	Int.	Nov. 1	4.00	7.60	7.20	6.80
<b>Golden Mensa</b> .....	July 22	Med.	Int.	Nov. 10	2.75	5.20	4.95	4.65
<b>Bojangles</b> .....	July 25	Med.	Int.	Nov. 20	5.00	9.50	9.00	8.50
<b>Champagne</b> .....	July 28	Med.	Int.	Nov. 25	4.00	7.60	7.20	6.80
* <b>Golden Jane</b> .....	July 28	Tall	Large	Nov. 28	2.75	5.20	4.95	4.65
<b>Cinderella</b> .....	Aug. 5	Med.	Int.	Dec. 5	4.00	7.60	7.20	6.80
<b>Goldtone</b> .....	Aug. 5	Med.	Int.	Dec. 5	5.00	9.50	9.00	8.50
<b>Challenge</b> .....	Aug. 10	Med.	Int.	Dec. 15	5.00	9.50	9.00	8.50

<b>WHITE</b>								
<b>Halo</b> .....	July 19	Med.	Int.	Nov. 5	5.00	9.50	9.00	8.50
<b>Kolowa</b> .....	July 19	Med.	Int.	Nov. 5	5.00	9.50	9.00	8.50
<b>White Mensa</b> .....	July 22	Med.	Int.	Nov. 10	2.75	5.20	4.95	4.65
* <b>White Valencia</b> .....	July 28	Tall	Large	Nov. 28	4.00	7.60	7.20	6.80
<b>Yukon</b> .....	Aug. 7	Tall	Int.	Dec. 10	2.50	4.75	4.50	4.25

<b>PINK</b>								
<b>Reward</b> .....	July 12	Med.	Int.	Oct. 25	5.00	9.50	9.00	8.50
<b>October Pink</b> .....	July 16	Med.	Int.	Oct. 28	3.00	5.70	5.40	5.10
<b>Ballerina</b> .....	July 16	Med.	Large	Nov. 1	4.00	7.60	7.20	6.80
<b>Brocade</b> .....	July 22	Tall	Int.	Nov. 15	2.50	4.75	4.50	4.25
<b>Soprano</b> .....	July 22	Med.	Int.	Nov. 15	4.00	7.60	7.20	6.80
* <b>Dark Valencia</b> .....	July 28	Tall	Large	Nov. 28	2.75	5.20	4.95	4.65
* <b>Valencia</b> .....	July 28	Tall	Large	Nov. 28	2.75	5.20	4.95	4.65
<b>Camille</b> .....	Aug. 8	Med.	Int.	Dec. 8	5.00	9.50	9.00	8.50
<b>Coronet</b> .....	Aug. 4	Med.	Large	Dec. 10	5.00	9.50	9.00	8.50
<b>Debutante</b> .....	Aug. 7	Tall	Int.	Dec. 10	5.00	9.50	9.00	8.50
<b>Rosalind</b> .....	Aug. 8	Med.	Int.	Dec. 20	2.50	4.75	4.50	4.25

<b>BRONZE</b>								
<b>Buckskin</b> .....	July 12	Med.	Int.	Oct. 25	5.00	9.50	9.00	8.50
<b>Sylvanna</b> .....	July 22	Med.	Int.	Nov. 10	2.75	5.20	4.95	4.65
<b>Bourbon</b> .....	July 25	Med.	Int.	Nov. 20	4.00	7.60	7.20	6.80
<b>Mrs. Dewey</b> .....	July 25	Med.	Int.	Nov. 20	5.00	9.50	9.00	8.50
<b>Carousel</b> .....	July 25	Med.	Int.	Nov. 22	5.00	9.50	9.00	8.50
<b>Indian Head</b> .....	July 28	Med.	Large	Nov. 28	5.00	9.50	9.00	8.50
* <b>Apricot Valencia</b> .....	July 28	Tall	Large	Nov. 28	2.75	5.20	4.95	4.65
<b>Galaxy</b> .....	Aug. 5	Med.	Int.	Dec. 5	4.00	7.60	7.20	6.80

<b>RED</b>								
<b>Red Daisy</b> .....	July 19	Med.	Int.	Nov. 5	3.00	5.70	5.40	5.10
<b>Bittersweet</b> .....	July 20	Tall	Int.	Nov. 5	2.75	5.20	4.95	4.65
<b>Carnelia</b> .....	July 25	Short	Large	Nov. 20	3.00	5.70	5.40	5.10
<b>Festival</b> .....	July 28	Med.	Int.	Nov. 25	4.00	7.60	7.20	6.80
* <b>Crimson Valencia</b> .....	July 28	Tall	Large	Nov. 28	4.00	7.60	7.20	6.80
<b>Holiday</b> .....	Aug. 7	Med.	Int.	Dec. 15	4.00	7.60	7.20	6.80
<b>Sarong</b> .....	Aug. 7	Med.	Int.	Dec. 15	3.00	5.70	5.40	5.10
<b>Christmas Star</b> .....	Aug. 7	Med.	Int.	Dec. 20	3.50	6.65	6.30	5.95
<b>Merrymaker</b> .....	Aug. 7	Med.	Int.	Dec. 20	4.00	7.60	7.20	6.80

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 43 FOR QUANTITY PRICES.

\*Responds to Disbudding.





## Anemone Varieties

Name	Last Pinch	Height	Size & Type	Flowering Date	50 per 50	100-250 per 100	300-450 per 100	500-950 per 100
<b>YELLOW</b>								
*Yellow Shasta.....	July 22	Med.	Large	Nov. 10	\$2.75	\$5.20	\$4.95	\$4.65
Sunray.....	July 22	Short	Int.	Nov. 10	2.50	4.75	4.50	4.25
*Susanne Miller.....	July 25	Tall	Large	Nov. 18	3.00	5.70	5.40	5.10
*Yellow L. I. Beauty.....	July 25	Med.	Large	Nov. 20	4.00	7.60	7.20	6.80
*Yellow Nevada.....	July 28	Med.	Int.	Nov. 20	3.00	5.70	5.40	5.10
*Yellow Supreme.....	Aug. 2	Med.	Large	Dec. 10	3.00	5.70	5.40	5.10
<b>WHITE</b>								
*White Anemone.....	July 20	Tall	Large	Nov. 5	3.00	5.70	5.40	5.10
*Little America.....	July 22	Short	Int.	Nov. 10	2.25	4.25	4.00	3.80
Felicity.....	July 22	Med.	Int.	Nov. 10	3.50	6.65	6.30	5.95
*Shasta.....	July 22	Med.	Large	Nov. 10	2.75	5.20	4.95	4.65
*White Norma.....	July 25	Tall	Large	Nov. 18	3.00	5.70	5.40	5.10
*Long Island Beauty.....	July 25	Med.	Large	Nov. 20	2.50	4.75	4.50	4.25
*Nevada.....	July 28	Med.	Int.	Nov. 20	2.75	5.20	4.95	4.65
*White Supreme.....	Aug. 2	Med.	Large	Dec. 10	3.00	5.70	5.40	5.10
Garza.....	Aug. 4	Med.	Int.	Dec. 15	2.75	5.20	4.95	4.65
<b>PINK</b>								
*Betty Rose.....	July 12	Med.	Large	Oct. 25	3.00	5.70	5.40	5.10
*Tuxedo.....	July 22	Med.	Large	Nov. 10	3.00	5.70	5.40	5.10
Linda Lou.....	July 22	Med.	Int.	Nov. 10	2.75	5.20	4.95	4.65
*Orchid Beauty.....	July 22	Med.	Int.	Nov. 15	2.75	5.20	4.95	4.65
*Norma.....	July 25	Tall	Large	Nov. 18	3.00	5.70	5.40	5.10
*Dark Pink Norma.....	July 25	Tall	Large	Nov. 18	3.00	5.70	5.40	5.10
*Pink L. I. Beauty.....	July 25	Med.	Large	Nov. 20	4.00	7.60	7.20	6.80
Majorette.....	July 25	Med.	Int.	Nov. 25	5.00	9.50	9.00	8.50
*Beautiful Lady.....	July 28	Short	Large	Nov. 25	2.75	5.20	4.95	4.65
*Enchantress.....	Aug. 2	Med.	Large	Dec. 5	3.00	5.70	5.40	5.10
*Dark Enchantress.....	Aug. 2	Med.	Large	Dec. 5	4.00	7.60	7.20	6.80
*Dark Pink Supreme.....	Aug. 2	Med.	Large	Dec. 10	3.00	5.70	5.40	5.10
<b>BRONZE</b>								
*Bronze Tuxedo.....	July 22	Med.	Large	Nov. 10	3.00	5.70	5.40	5.10
Yolanda.....	July 28	Med.	Int.	Nov. 25	2.50	4.50	4.25	4.00
<b>RED</b>								
*The Titan.....	July 22	Med.	Large	Nov. 10	3.00	5.70	5.40	5.10
*Red Rolinda.....	July 28	Med.	Int.	Nov. 23	2.75	5.20	4.95	4.65
*Red Supreme.....	Aug. 2	Med.	Large	Dec. 10	4.50	8.50	8.25	8.00

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 43 FOR QUANTITY PRICES.

\*Responds to disbudding.

## Insecticides and Fungicides

Benzene Hexachloride Spray	
Pt. \$5.00 — Qt. \$8.00 — Gal. \$25.00	
Calcium Cyanide G. Fumigant	
5 lbs. \$3.75 — 25 lbs. 12.50	
Chlordane — 50% Spray Powder	
4 lb. bags (12 per case) per lb. 1.00	
5% Dust—50 lb. bags ..... per 100 lbs. 16.00	
Deenate 50 W. (DDT).....4 lbs. \$2.25 — 25 lbs. 11.25	
DuPont Spreader Sticker Gal. \$6.25 — 5 Gal. 30.00	
Fermate .....3 lbs. \$2.70 — 25 lbs. 21.75	
Isotox 15% B.H.C. .... 50 lbs. 20.00	
Liquid Parzate ..... (5 gal. cans only) 9.50	
Nicofume Liquid ..... Gal. 12.55	
Nicofume Pressure Fumigators	
1/2 lb. cans (12 cans) 4.80	
1 lb. cans (12 cans) 8.35	

NNOR ..... Gal. \$10.00	
Parathion Bombs ..... 4 lb. Bombs—ea. 8.00	
(2 Bombs Minimum Order)	
Parathion Dust 2% ..... 25 lbs. \$10.00 — 50 lbs. 18.00	
Parzate ..... 3 lb. bags (12 per case) per lb. 1.00	
Parathion Spray—15% Wettable ..... 4 lb. bag 3.00	
P40 ..... 25 lbs. \$4.75 — 50 lbs. 9.00	
100 lbs. \$17.00 — 1000 lbs. 160.00	
Sodium Sclenate ..... per lb. 4.00	
TEPP Bombs ..... 4 lb. Bombs — each 10.00	
Tobacco Dust ..... 100 lbs. \$3.50 — Ton 65.00	
Vapotone ..... Gal. 11.90	
Zerlate ..... 3 lbs. \$2.70 — 25 lbs. 21.25	





# CHRYSANTHEMUM CUTTINGS

## Pot Plant Varieties

Name	Last Pinch	Type	Spray or Disbud	Flowering Date	50 per 50	100-250 per 100	300-450 per 100	500-950 per 100
<b>YELLOW</b>								
<b>Gold Lode</b> .....	Aug. 24	L.F. Dec.	Disbud	Oct. 15	\$2.50	\$4.75	\$4.50	\$4.25
<b>Mrs. H. E. Kidder</b> .....	Aug. 24	L.F. Inc.	Disbud	Oct. 20	2.50	4.75	4.50	4.25
<b>Smith's Superlative</b> .....	Aug. 24	L.F. Inc.	Disbud	Oct. 25	3.00	5.70	5.40	5.10
<b>Yellow Bergen</b> .....	Aug. 24	L.F. Inc.	Disbud	Oct. 25	3.00	5.70	5.40	5.10
<b>Blazing Gold</b> .....	Aug. 24	L.F. Inc.	Disbud	Oct. 25	3.00	5.70	5.40	5.10
<b>Sunglow</b> .....	Aug. 24	L.F. Inc.	Disbud	Oct. 25	2.75	5.20	4.95	4.65
<b>Golden Glory</b> .....	Aug. 29	L.F. Inc.	Disbud	Nov. 1	3.00	5.70	5.40	5.10
<b>Yellow Lace</b> .....	Sept. 8	Spider	Disbud	Nov. 1	4.00	7.60	7.20	6.80
<b>Yellow Izola</b> .....	Aug. 29	Int. Anem.	Disbud	Nov. 1	2.50	4.75	4.50	4.25
<b>Indianapolis Yellow</b> .....	Aug. 29	L.F. Inc.	Disbud	Nov. 8	2.75	5.20	4.95	4.65
<b>Yellow Beauty</b> .....	Aug. 29	L.F. Inc.	Disbud	Nov. 10	3.00	5.70	5.40	5.10
<b>Honey Dew</b> .....	Sept. 3	L.F. Inc.	Disbud	Nov. 15	3.00	5.70	5.40	5.10
<b>Bonnaffon Deluxe</b> .....	Sept. 3	L.F. Inc.	Disbud	Nov. 20	2.50	4.75	4.50	4.25
<b>Friendly Rival</b> .....	Sept. 3	L.F. Inc.	Disbud	Nov. 20	2.75	5.20	4.95	4.65
<b>Marie De Petris</b> .....	Sept. 3	L.F. Inc.	Disbud	Nov. 23	2.75	5.20	4.95	4.65
<b>Sungold</b> .....	Sept. 8	L.F. Inc.	Disbud	Nov. 25	2.75	5.20	4.95	4.65

<b>WHITE</b>								
<b>Granite State</b> .....	Aug. 24	L. Pom.	Disbud	Oct. 25	2.75	5.20	4.95	4.65
<b>Queen's Lace</b> .....	Sept. 8	Spider	Disbud	Nov. 1	4.00	7.60	7.20	6.80
<b>Indianapolis White</b> .....	Aug. 29	L.F. Inc.	Disbud	Nov. 8	2.75	5.20	4.95	4.65
<b>Richard Mandel</b> .....	Aug. 29	L. Pom.	Disbud	Nov. 10	2.75	5.20	4.95	4.65
<b>Little America</b> .....	Aug. 29	Int. Anem.	Disbud	Nov. 10	2.25	4.25	4.00	3.80
<b>Marketeer</b> .....	Sept. 3	L.F. Inc.	Disbud	Nov. 18	2.75	5.20	4.95	4.65
<b>Long Island Beauty</b> .....	Sept. 3	L. Anem.	Disbud	Nov. 20	2.50	4.75	4.50	4.25
<b>White Frick</b> .....	Sept. 3	L.F. Inc.	Disbud	Nov. 25	2.75	5.20	4.95	4.65
<b>Margaret Moeller</b> .....	Sept. 8	L.F. Inc.	Disbud	Dec. 5	2.75	5.20	4.95	4.65

<b>PINK</b>								
<b>Izola</b> .....	Aug. 29	Int. Anem.	Disbud	Nov. 1	2.50	4.75	4.50	4.25
<b>J. W. Prince</b> .....	Aug. 29	L.F. Inc.	Disbud	Nov. 5	2.75	5.20	4.95	4.65
<b>Indianapolis Pink</b> .....	Aug. 29	L.F. Inc.	Disbud	Nov. 8	2.75	5.20	4.95	4.65
<b>Thyra</b> .....	Aug. 29	L. Pom.	Disbud	Nov. 10	2.75	5.20	4.95	4.65
<b>Queen of Pinks</b> .....	Aug. 29	L. Pom.	Disbud	Nov. 10	2.75	5.20	4.95	4.65
<b>Masterpiece</b> .....	Aug. 29	L. Pom.	Disbud	Nov. 15	2.50	4.75	4.50	4.25
<b>Helen Frick</b> .....	Sept. 3	L.F. Inc.	Disbud	Nov. 25	2.75	5.20	4.95	4.65
<b>Beautiful Lady</b> .....	Sept. 3	L. Anem.	Disbud	Nov. 25	2.75	5.20	4.95	4.65
<b>Majorette</b> .....	Sept. 3	Int. Anem.	Spray	Nov. 25	5.00	9.50	9.00	8.50

<b>BRONZE and RED</b>								
<b>Hilda Bergen</b> .....	Aug. 24	L.F. Inc.	Disbud	Oct. 25	3.00	5.70	5.40	5.10
<b>Glitters</b> .....	Aug. 24	L.F. Inc.	Disbud	Oct. 28	3.00	5.70	5.40	5.10
<b>Apricot Queen</b> .....	Aug. 29	L.F. Inc.	Disbud	Nov. 1	3.00	5.70	5.40	5.10
<b>Indianapolis Bronze</b> .....	Aug. 29	L.F. Inc.	Disbud	Nov. 8	2.75	5.20	4.95	4.65
<b>Copperhead</b> .....	Aug. 29	L.F. Inc.	Disbud	Nov. 10	5.00	9.50	9.00	8.50
<b>Dark Bronze Masterpiece</b> .....	Aug. 29	L. Pom.	Disbud	Nov. 15	4.00	7.60	7.20	6.80
<b>Gypsy</b> .....	Aug. 29	S. Anem.	Spray	Nov. 15	2.75	5.20	4.95	4.65
<b>Legal Tender</b> .....	Sept. 3	L. Pom.	Disbud	Nov. 20	2.50	4.75	4.50	4.25
<b>Red Rolinda</b> .....	Sept. 8	Int. Anem.	Disbud	Nov. 23	2.75	5.20	4.95	4.65

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 43 FOR QUANTITY PRICES.





## New Introductions

### STANDARDS

#### YELLOW

**JAMBOREE.** Nov. 10. Best described as a Golden Yellow Mefo. Responds with Mefo in the shading program. Large flower. Does not shatter.

#### WHITE

**SNOWLINE.** Dec. 10. A large showy white flower. A December Mum that's easy to do. Does well in average greenhouse conditions.

#### BRONZE

**COPPERHEAD.** Nov. 10. A large coppery bronze decorative. While it is very satisfactory grown as disbudded sprays, it is best when disbudded to a single flower. Also excellent for pot culture. For May and June as well as September through November.

**OAKDALE.** Nov. 10. A buff-bronze Mum. Best in natural season. Color an interesting variation from that of Indianapolis Bronze.

#### PINK

**SUGAR PLUM.** Nov. 1. A hard pink Mum. Improves the size and substance of J. W. Prince.

**Mary Garden.** Nov. 5. A pink spider. An interesting new addition to this increasingly popular class of novelties.

### WHITE POMPONS

**SONGSTER.** Oct. 25. An intermediate white pompon. Withstands heat well. A good variety for June, July and August flowering. More productive and higher quality flower than Pristine.

**SNOWFLURRY.** Nov. 20. A small white button pompon. Larger than Pinocchio. A very promising variety for October through March. 11-week response.

**HIGHBROW.** Nov. 20. An ivory-white decorative, similar to Cameo. Season, November through February. 11-week response.

**BELRAY.** Oct. 25. Large white pompon. Tall grower. One of the best large whites for March 15 to June 15 flowering. 11-week response.

**PARAMOUNT.** Nov. 28. Intermediate white pompon. Larger than Priscilla. Sunnyside growth with good response. Freer and sturdier growth than Cordova. Tolerates a wide temperature range. For October through March flowering. 11-week response.

**SPANGLES.** Dec. 5. Small white pompon. Best described as a late white Sunnyside, which it resembles in both flower form and growth habit.

**FORTUNE.** Dec. 10. A formal white pompon. Omega growth and production. Freer than Snowcap. Achieves a new standard for high quality in white pompons for October 15 to March 15. 13-week response.

**HEIRLOOM.** Dec. 20. A white decorative. Form resembles that of Debonair. A quality pompon for December through February. 13-week response.

### YELLOW POMPONS

**CRESCENDO.** Nov. 5. A beautiful large pompon. An outstanding variety for the high temperature period from May 15 to September 15. A very tall-growing variety. Has a 9-week response to short day treatment but requires 10 less long days for growth than is generally recommended for this group.

**KLONDIKE.** Nov. 20. An orange-yellow pompon. Best described as an intense orange-yellow Masterpiece. Useful in natural sprays, disbudded sprays, or small disbuds. Outstanding in April, May and June; also October through December. 11-week response.

**LOLLIPOP.** Nov. 20. A lemon-yellow pompon. Very formal, round and hard. Has a long season of usefulness, fast response and good production. A good variety for every week of the year. 10-week response.

**SYMMETRY.** Dec. 5. Intermediate yellow pompon. Short, stocky growth. Perfect form. Does not shatter. Best for flowering in natural season.

**SEQUIN.** Dec. 15. Small yellow pompon. A late Pixie. Superior to Golden Anniversary in response and growth habit. Hard, round and durable.

**SHAMROCK.** Dec. 15. Large yellow decorative. A large yellow Silversmith. Heavy Yuleflame growth and production. November through February flowering. 13-week response.

**SUNRISE.** Dec. 24. A yellow pompon best described as a late Gold Coast. Sunrise is not sensitive to low night temperatures. A better growth habit than either Yellow Snow or Golden Anniversary.

**SIREN.** Dec. 30. A yellow decorative. Smaller than Vibrant but very similar to it and flowers later. Tolerates low night temperatures.

### YELLOW SINGLES

**BOJANGLES.** Nov. 20. Yellow daisy. Intense color, heavy petalage. Brighter, livelier and earlier than Champagne or Cinderella. November through March. 11-week response.

**GOLDTONE.** Dec. 5. A heavy-petaled yellow single. Best described as a yellow Christmas Star. A good variety for flowering October 15 to March 15. Tolerates wide temperature range. 11-week response.

**CHALLENGE.** Dec. 15. Intermediate yellow single. Better than Sunkist in color and production. Stocky growth habit. December 15 to March 15 growing season. 13-week response.



## New Introductions

### PINK POMPONS

**TAFFETA.** Nov. 15. A deep pink decorative for September 15 to Thanksgiving. Also good from April 15 to June 15. 10-week response.

**PINKY.** Nov. 20. Intermediate pink decorative. Very high producer. It responds more rapidly than Minstrel. Excellent October through March. 11-week response.

**MEDALLION.** Dec. 20. Intermediate pink pompon. A decorative similar to Riviera with a superior growth habit. A good pink for flowering November through February. 13-week response.

### PINK SINGLES

**REWARD.** Oct. 25. A very productive deep pink daisy that holds color in July and August. Easily the outstanding early pink daisy for June 15 to September 15 flowering. 8-week response.

**DEBUTANTE.** Dec. 10. Large pink single with color similar to that of Valencia. Grows shorter and produces better than Rosalind. Best at lower temperatures, therefore easier to grow than the Valencias. Good through November. December, January and February. 13-week response.

**CORONET.** Dec. 10. Intermediate dark pink single. Extremely attractive form, wide petals and small eye. Does not require 60° night temperature for bud set.

### PINK ANEMONE

**MAJORETTE.** Nov. 25. A small pink anemone. Short, compact growth. Lively color and good form. An ideal pot plant. Fine for cutting during April, May and June, as well as September 15 through November. 11-week response.

### BRONZE POMPONS

**BEAUREGARD.** Nov. 1. A reddish orange pompon. Somewhat similar to Seneca but holds its color better. A very versatile variety that produces good flowers every month of the year. 9-week response.

**MAGICIAN.** Nov. 5. A large bronze pompon for September 15 to early November. Flower about the size of well-grown, partially disbudded Masterpiece. Color is superb under artificial light.

**CHANTICLEER.** Nov. 10. A large, reddish bronze pompon for September, October and early November flowering. Another interesting bronze for the autumn season.

**FALCON.** Dec. 1. Intermediate reddish bronze pompon. An improved Rusticon. Flowers easily October 15 to March 15. 12-week response.

### WHITE SINGLES

**HALO.** Nov. 5. White daisy for cloth house. The most productive early white daisy. For best results the time between pinch and shade should not exceed 28 days. 9-week response.

**KOLOWA.** Nov. 5. White single similar to White Mensa. Excellent for shading. Better growth and response than that of Mensa. Best grown in sprays.

### BRONZE SINGLES

**BUCKSKIN.** Oct. 25. A tawny bronze daisy. Easily replaces California Bronze Daisy in the early cloth-house program. Production is outstanding. 8-week response.

**MRS. DEWEY.** Nov. 20. A heavy-petaled deep bronze single for Thanksgiving.

**CAROUSEL.** Nov. 22. Coral-bronze daisy. Wide petals, excellent form and substance. Does well under low night temperatures.

**INDIAN HEAD.** Nov. 28. A reddish apricot-bronze single. Good wide petalage. Ranks with Apricot Valencia as an outstanding bronze daisy. It is more versatile than the Valencias—a freer growth habit. A long flowering season—September 15 through April. 11-week response.

### BRONZE ANEMONE

**DAZZLER.** Dec. 5. Coppery bronze partial anemone type. Seedling of Yellow, Valencia x Crimson Glow. Strong-growing variety and a color that blends well.

### RED POMPONS

**FIREFLY.** Oct. 25. A Nipponicum seedling. Fine for cloth house. An early red pompon that holds its color exceptionally well.

**CHEVRON.** Nov. 10. An intense red pompon. Resembles a red Cassandra, with a better spray formation and more decorative form. Holds color better than Red Rust or Seneca and is being used in flowering programs from May 15 to early November. 10-week response.

**PARAGON.** Nov. 15. A large red pompon. Heavy producer. A red Masterpiece with good flower substance. September 1 to November 20. 10-week response.

**PAGEANTRY.** Dec. 10. A red pompon. Best described as a red Snow. Needs low temperatures. Suited for December flowering only.

**CHRISTMAS GREETING.** Dec. 20. Large red decorative. The one red pompon for Christmas with good production. It has a place in the flowering program from November 15 to February 15. 13-week response.





## *New Introductions—Garden Varieties*

**MARIONETTE.** Sept. 25. A small rust-red pompon about 1½ inches in diameter. Very formal type. Strong plant. Grows to about 25 inches in height. Good cut-flower variety. Holds well.

**MONA.** Oct. 5. Very hard, intermediate bronze pompon. Bushy, compact grower. A variety for border and pot culture.

**ARGONNE.** Oct. 5. Strong growing to 2½ feet. Large flowering rosy purple. A good variety.

**MONOGRAM.** Oct. 5. Pure white daisy approximately 2½ inches in diameter. Compact growth habit. Excellent for gardens and pot culture.

**POLARIS.** Oct. 5. An early yellow daisy. A new Arctic hybrid. Fine for cutting in garden or greenhouse.

**SWEETHEART.** Oct. 10. Light lavender-pink daisy. Grows to height of about 3 feet. Fine for cutting and holds well.

**RENOWN.** Oct. 10. White daisy. Larger flower, improved form and better keeper than Serenity. For gardens and pot culture.

**SERENADE.** Oct. 10. Magenta-pink daisy. Strong, upright, 3-foot stems. A fine cut-flower variety.

**JAMES STEWART.** Oct. 10. Apricot-gold pompon. Important for cloth house and early greenhouse flowering. Holds well.

**JOYBRINGER.** Oct. 10. Salmon-rose decorative. Dwarf, compact and spreading habit. Desirable for borders and pot culture.

**GOLDLEAF.** Oct. 10. A bright yellow decorative. Grows over 2 feet in height. Similar to Chas. Nye, but with superior growth habit.

**FIRESIDE.** Oct. 10. Burnt-orange and salmon decorative. Attains a height of 30 inches or more. Foliage very resistant. High producer. Fine cut flowers.

**GOLDRUSH.** Oct. 10. Yellow daisy. Vigorous 3-foot growth. Resistant foliage. Good cut-flower production.

**CARMINE QUEEN.** Oct. 10. Brilliant carmine-red pompon. Hard flower. For cut flowers in the garden or greenhouse. A beautiful red. One of the few varieties that retains full brilliance to maturity.

**CALICO.** Oct. 10. Coral-bronze daisy. Strong, tall plant. A fine flower for cutting.

**BRIGHT FORECAST.** Oct. 10. Very formal yellow pompon. Outstanding flower quality. Somewhat similar to Gold Coast. Equal to greenhouse varieties in quality.

**CLASSIC.** Oct. 10. Small white semi-formal pompon. The flower quality is outstanding and compares well with that of the better greenhouse varieties.

**MAESTRO.** Oct. 10. White pompon. Dwarf, compact, 18-inch growth. Spreads well and is excellent for borders and pot plants.

**ADAGIO.** Oct. 10. A brilliant raspberry coppery rose pompon. Useful for cut-flower purposes in the garden and early cloth house. Similar in type to Mary McArthur, with more brilliant coloring.

**BAMBOO.** Oct. 10. A buff-bronze daisy 2½ inches in diameter. Vigorous 30-inch growth. Flower quality equal to that of greenhouse varieties. Fine keeper.

**FASHION.** Oct. 15. A new pink semi-double decorative. A two-tone salmon and rosewood pink. An important cut-flower variety.

**LEMONADE.** Oct. 15. Ivory-yellow decorative. A "must" in the early cut-flower varieties. Outstanding because it's different.

**WITCHERY.** Oct. 15. A golden bronze decorative. Compact 2-foot growth. For border and cut flowers. A fine keeper.

**CARMELITA.** Oct. 15. Orange-apricot decorative. Fine cut-flower variety for the garden.

**SWEEPSTAKE.** Oct. 15. A small formal yellow pompon. A cut-flower variety with production, flower substance and durable foliage.

**NOCTURNE.** Oct. 15. An early crimson cut-flower variety for field or greenhouse. A good hard pompon.

**NOKOMIS.** Oct. 15. Large bronze decorative. Another outstanding De Petris introduction.

**SILVERPLATE.** Oct. 15. A white decorative. Vigorous and productive outdoor cut-flower variety.

**SALUTE.** Oct. 15. Deep orchid daisy. A cut-flower variety. Beautiful form and substance.

**ROBINHUE.** Oct. 15. A very double, large red decorative. A top-notch cut-flower variety in every respect.



# CHRYSANTHEMUM CUTTINGS

## Garden or Hardy Chrysanthemums

SYMBOLS — (L) Large — (D) Decorative — (P) Pom — (C) Cushion — (S) Single — (B) Button

Variety	Type	Color	Height	Blooming Date	Per 50	100 to 250	300 to 450	500 up
<b>WHITE</b>								
<b>White Cushion</b> .....	(C)	White	Short	Sept. 8	\$2.75	\$5.00	\$4.75	\$4.50
<b>Dee Dee Ahrens</b> .....	(D)	Pure White	Tall	Sept. 10	3.00	5.50	5.25	5.00
<b>Paper White</b> .....	(D)	White	Short	Sept. 10	5.00	9.50	9.00	8.50
<b>Chris Columbus</b> .....	(LD)	Cream White	Tall	Sept. 15	3.00	5.70	5.40	5.10
<b>Calcite</b> .....	(D)	Wh. Cream Ctr.	Med.	Sept. 15	3.00	5.50	5.25	5.00
<b>Candlelight</b> .....	(D)	Cr. Yel. Ctr.	Med.	Sept. 15	3.00	5.50	5.25	5.00
<b>Drifted Snow</b> .....	(D)	Cream White	Med.	Sept. 15	3.00	5.50	5.25	5.00
<b>Polar Ice</b> .....	(LD)	White	Med.	Sept. 15	3.50	6.50	6.25	6.00
<b>White Bounty</b> .....	(B)	Wh. Cream Ctr.	Tall	Sept. 15	3.75	7.00	6.75	6.50
<b>White Tower</b> .....	(P)	Cream White	Tall	Sept. 20	4.50	8.50	8.25	8.00
<b>White Cloud</b> .....	(D)	White	Tall	Sept. 25	2.75	5.00	4.75	4.50
<b>Pepita</b> .....	(B)	Egg Shell Wh.	Med.	Sept. 29	3.50	6.50	6.25	6.00
<b>Snowfall</b> .....	(D)	Wh. Cream Ctr.	Med.	Sept. 29	3.50	6.50	6.25	6.00
<b>Wh. Wonder</b> .....	(P)	Cream	Tall	Oct. 1	3.00	5.70	5.40	5.10
<b>Ermine</b> .....	(LD)	Ivory White	Med.	Oct. 1	5.00	9.50	9.00	8.50
<b>Wintersef</b> .....	(LD)	White	Med.	Oct. 1	3.25	6.00	5.75	5.50
<b>Avalanche</b> .....	(LD)	White	Med.	Oct. 1	3.00	5.70	5.40	5.10
<b>Fragrant</b> .....	(D)	White	Tall	Oct. 5	3.25	6.00	5.75	5.50
<b>Youdath's Wh.</b> .....	(LD)	White	Med.	Oct. 5	2.75	5.00	4.75	4.50
<b>Monogram</b> .....	(S)	White	Short	Oct. 5	5.00	9.50	9.00	8.50
<b>Mrs. Fischer</b> .....	(P)	White	Tall	Oct. 10	2.75	5.00	4.75	4.50
<b>Maestro</b> .....	(P)	White	Short	Oct. 10	5.00	9.50	9.00	8.50
<b>Serene</b> .....	(D)	Wh. Tinted Pk.	Med.	Oct. 10	3.25	6.00	5.75	5.50
<b>Classic</b> .....	(P)	White	Med.	Oct. 10	5.00	9.50	9.00	8.50
<b>White Spoon</b> .....		White	Med.	Oct. 10	2.75	5.00	4.75	4.50
<b>Renown</b> .....	(S)	White	Short	Oct. 10	5.00	9.50	9.00	8.50
<b>Model O'Perfection</b> .....	(B)	White	Tall	Oct. 15	2.75	5.00	4.75	4.50
<b>Silverplate</b> .....	(D)	White	Tall	Oct. 15	5.00	9.50	9.00	8.50

## YELLOW

<b>Butter Ball</b> .....	(B)	Golden Yel.	Short	Sept. 1	3.25	6.00	5.75	5.50
<b>Early Gold</b> .....	(P)	Golden Yel.	Short	Sept. 5	4.50	8.50	8.25	8.00
<b>Yel. Cushion</b> .....	(C)	Lt. Yellow	Short	Sept. 8	2.75	5.00	4.75	4.50
<b>Golden Hours</b> .....	(P)	Deep Lemon	Med.	Sept. 10	3.50	6.50	6.25	6.00
<b>W. P. Snyder</b> .....	(LP)	Apricot Orange	Med.	Sept. 10	4.00	7.50	7.25	7.00
<b>Pomponette</b> .....	(P)	Golden Yellow	Short	Sept. 15	3.00	5.50	5.25	5.00
<b>Sunapee</b> .....	(P)	Dp. Yellow	Tall	Sept. 15	3.25	6.00	5.75	5.50
<b>Yel. Sup. (Hardy Cushion)</b> ..	(C)	Yel. Cushion	Short	Sept. 15	3.25	6.00	5.75	5.50
<b>Yel. Chris Columbus (New)</b> ..	(LD)	Bright Yel.	Tall	Sept. 15	7.50	14.50	14.25	14.00
<b>Early Yellow</b> .....	(B)	Deep Lemon	Short	Sept. 15	2.75	5.00	4.75	4.50
<b>Bambi</b> .....	(D)	Fawn Yellow	Med.	Sept. 15	3.25	6.00	5.75	5.50
<b>Defiance (Hardy)</b> .....	(D)	Golden Yel.	Tall	Sept. 15	4.00	7.50	7.25	7.00
<b>Golden Carpet</b> .....	(P)	Golden Yel.	Short	Sept. 15	6.50	12.00	11.75	11.50
<b>M. J. Costello</b> .....	(D)	Golden Yel.	Short	Sept. 20	3.25	6.00	5.75	5.50
<b>Old Gold</b> .....	(P)	Golden Yel.	Med.	Sept. 20	3.25	6.00	5.75	5.50
<b>Sept. Sunshine</b> .....	(D)	Bright Yel.	Med.	Sept. 20	3.50	6.50	6.25	6.00
<b>Wychwood</b> .....	(LP)	Canary Yel.	Med.	Sept. 20	3.50	6.50	6.25	6.00
<b>Charles Nye</b> .....	(LP)	Lemon Yellow	Tall	Sept. 25	3.00	5.70	5.40	5.10
<b>Honeycomb</b> .....	(P)	Golden Yel.	Med.	Sept. 25	3.00	5.70	5.40	5.10
<b>Catherine Collins</b> .....	(P)	Lemon Yel.	Tall	Sept. 25	3.25	6.00	5.75	5.50
<b>Morning Star</b> .....	(D)	Primrose Yel.	Med.	Sept. 25	3.25	6.00	5.75	5.50
<b>Tangerine</b> .....	(LD)	Orange	Med.	Sept. 25	3.50	6.50	6.25	6.00
<b>King Midas</b> .....	(LD)	Lemon Yel.	Med.	Oct. 1	2.75	5.00	4.75	4.50
<b>Zantha</b> .....	(B)	Canary Yel.	Med.	Oct. 1	3.25	6.00	5.75	5.50
<b>Chiquita</b> .....	(B)	Lemon Yel.	Med.	Oct. 5	3.25	6.00	5.75	5.50
<b>James Eadie</b> .....	(LP)	Deep Lemon	Tall	Oct. 5	3.50	6.50	6.25	6.00
<b>Yel. Avalanche</b> .....	(LD)	Canary Yellow	Tall	Oct. 5	3.50	6.50	6.25	6.00
<b>Polaris (New)</b> .....	(S)	Goldn. Yel. Sgl.	Tall	Oct. 5	5.00	9.50	9.00	8.50
<b>Mrs. S. P. Rotan</b> .....	(D)	Golden Yel.	Med.	Oct. 5	3.25	6.00	5.75	5.50
<b>James Stewart</b> .....	(P)	Yellow	Med.	Oct. 10	5.00	9.50	9.00	8.50
<b>Goldrush</b> .....	(S)	Yellow	Tall	Oct. 10	5.00	9.50	9.00	8.50
<b>Yellow Spoon</b> .....		Light Yellow	Short	Oct. 10	2.75	5.00	4.75	4.50
<b>Goldleaf</b> .....	(D)	Yellow	Tall	Oct. 10	5.00	9.50	9.00	8.50
<b>Yellow Blanket</b> .....	(B)	Bright Yel.	Tall	Oct. 10	3.75	7.00	6.75	6.50
<b>Bright Forecast</b> .....	(P)	Yellow	Med.	Oct. 10	5.00	9.50	9.00	8.50
<b>Lemon Spoon</b> .....		Golden Yel.	Short	Oct. 10	2.75	5.00	4.75	4.50
<b>Lemonade</b> .....	(D)	Yellow	Med.	Oct. 15	5.00	9.50	9.00	8.50
<b>September Gem</b> .....	(B)	Lemon Yellow	Med.	Oct. 15	2.75	5.00	4.75	4.50
<b>Sweepstake</b> .....	(P)	Yellow	Med.	Oct. 15	5.00	9.50	9.00	8.50
<b>Judith Anderson</b> .....	(B)	Golden Yellow	Med.	Oct. 15	2.75	5.00	4.75	4.50





# CHRYSANTHEMUM CUTTINGS

## Garden or Hardy Chrysanthemums

Variety	Type	Color	Height	Blooming Date	Per 50	100 to 250	300 to 450	500 up
<b>BRONZE and RED</b>								
Early Harvest (Cushion).....	(C)	Mahogany Orange	Short	Sept. 8	\$3.50	\$6.50	\$6.25	\$6.00
Harbinger.....	(D)	Golden Br.	Med.	Sept. 8	3.25	6.00	5.75	5.50
Sept. Bronze.....	(B)	Golden Br.	Med.	Sept. 10	2.75	5.00	4.75	4.50
Early Bronze.....	(B)	Orange Br.	Short	Sept. 15	3.00	5.70	5.40	5.10
Red Gold.....	(B)	Red & Gold	Med.	Sept. 15	3.25	6.00	5.75	5.50
Goblin.....	(P)	Reddish Br.	Tall	Sept. 20	2.75	5.00	4.75	4.50
Scarlet Crimson.....	(D)	Bright Crimson	Med.	Sept. 20	3.25	6.00	5.75	5.50
Mandalay.....	(P)	Orange Br.	Tall	Sept. 22	3.50	6.50	6.25	6.00
Marionette.....	(P)	Rust Red	Tall	Sept. 25	5.00	9.50	9.00	8.50
Champ. Cushion.....	(C)	Deep Br.	Short	Sept. 25	2.75	5.00	4.75	4.50
Com'dr Cushion.....	(C)	Red	Short	Sept. 25	2.75	5.00	4.75	4.50
Remembrance.....	(LD)	Dp. Carmine	Med.	Sept. 28	6.50	12.00	11.75	11.50
Kathleen Lehman.....	(D)	Orange Br.	Med.	Sept. 28	6.50	12.00	11.75	11.50
Mahogany Cushion.....	(C)	Jasper Red	Short	Sept. 28	5.00	9.50	9.25	9.00
Fiesta.....	(P)	Orange Rust	Med.	Oct. 1	4.00	7.50	7.25	7.00
Inspiration.....	(LD)	Apricot Orange	Tall	Oct. 1	3.50	6.50	6.25	6.00
Magnificent.....	(LD)	Plum Red	Tall	Oct. 1	4.50	8.50	8.25	8.00
Red Ridinghood.....	(D)	Bright Red	Tall	Oct. 1	3.25	6.00	5.75	5.50
Sam Williston.....	(C)	Fiery Red Cush	Short	Oct. 1	2.75	5.00	4.75	4.50
Bonfire.....	(P)	Bright Red	Tall	Oct. 1	2.75	5.00	4.75	4.50
Cardinal Spoon.....		Card. Red, Yel. Tube	Med.	Oct. 1	4.00	7.50	7.25	7.00
Cydonia.....	(LD)	Mahogany Red	Tall	Oct. 5	2.75	5.00	4.75	4.50
Meditation.....	(P)	Jasper Red	Tall	Oct. 5	3.50	6.50	6.25	6.00
September Cheer.....	(D)	Cherry Red	Med.	Oct. 5	2.75	5.00	4.75	4.50
Burgundy.....	(LD)	Wine Red	Tall	Oct. 5	2.75	5.00	4.75	4.50
Ruby Pompon.....	(P)	Ruby Crimson	Med.	Oct. 5	2.75	5.00	4.75	4.50
Red Velvet.....	(LD)	Dark Crimson	Med.	Oct. 5	3.00	5.70	5.40	5.10
Mona (New).....	(P)	Rust-Bronze	Med.	Oct. 5	5.00	9.50	9.00	8.50
Courageous.....	(D)	Ruby Red	Tall	Oct. 5	3.50	6.50	6.25	6.00
Sequoia.....	(D)	Amber	Med.	Oct. 5	2.75	5.00	4.75	4.50
The Chief.....	(D)	Scarlet & Gold	Med.	Oct. 5	2.75	5.00	4.75	4.50
Aviator.....	(P)	Copper	Med.	Oct. 8	3.00	5.70	5.40	5.10
Amber Glow.....	(D)	Rosey Bronze	Tall	Oct. 8	3.25	6.00	5.75	5.50
Fireside.....	(D)	Orange & Salmon	Tall	Oct. 10	5.00	9.50	9.00	8.50
Bamboo.....	(S)	Buff	Tall	Oct. 10	5.00	9.50	9.00	8.50
Ember.....	(D)	Orange	Med.	Oct. 10	2.75	5.00	4.75	4.50
Huntsman.....	(LD)	Brill't Crim.	Tall	Oct. 10	5.00	9.50	9.25	9.00
Adironda.....	(B)	Bt. Bronze	Short	Oct. 10	3.00	5.50	5.25	5.00
Air-Way Debut.....	(LD)	Golden Bronze	Med.	Oct. 10	3.25	6.00	5.75	5.50
Bokhara.....	(D)	Crim. & Wine	Med.	Oct. 10	4.00	7.60	7.20	6.80
Carnival.....	(LD)	Burnt Orange	Tall	Oct. 10	5.00	9.50	9.25	9.00
Carmine Queen (New).....	(L)	Carmine Red	Tall	Oct. 10	5.00	9.50	9.00	8.50
Calico.....	(S)	Coral Bronze	Tall	Oct. 10	5.00	9.50	9.00	8.50
Robinhue.....	(D)	Red	Med.	Oct. 15	5.00	9.50	9.00	8.50
Witchery.....	(D)	Golden Bronze	Tall	Oct. 15	5.00	9.50	9.00	8.50
Nokomis.....	(D)	Bronze	Med.	Oct. 15	5.00	9.50	9.00	8.50
Nocturne.....	(P)	Crimson	Med.	Oct. 15	5.00	9.50	9.00	8.50
Beacon.....	(LD)	Coral Apricot	Tall	Oct. 15	5.00	9.50	9.25	9.00
Bronze Pyramid.....	(LD)	Orange Bronze	Tall	Oct. 15	3.25	6.00	5.75	5.50
Carmelita (New).....	(LD)	Apricot Bronze	Tall	Oct. 15	5.00	9.50	9.00	8.50

## PINK

Salmon Precose.....	(D)	Salmon Pink	Short	Sept. 1	4.00	7.50	7.25	7.00
Welcome.....	(D)	Mellow Prpl.	Med.	Sept. 1	2.75	5.00	4.75	4.50
Ambrosia.....	(D)	Peach Pink	Med.	Sept. 5	4.00	7.50	7.25	7.00
Purple Star.....	(P)	Purple	Med.	Sept. 5	2.75	5.00	4.75	4.50
Major Cushion.....	(C)	Deep Pink	Short	Sept. 8	2.75	5.00	4.75	4.50
Autumn Song.....	(D)	Wine Rose	Med.	Sept. 10	3.50	6.50	6.25	6.00
Barbara Small.....	(D)	Lavender	Tall	Sept. 10	3.25	6.00	5.75	5.50
Dr. Longley.....	(D)	Rose Pink	Med.	Sept. 10	5.00	9.50	9.25	9.00
Lavender Lassie.....	(C)	Pink	Short	Sept. 10	6.00	11.50	11.25	11.00
Nye's Favorite.....	(D)	Lavender	Med.	Sept. 10	4.00	7.50	7.25	7.00
Orchid Helen.....	(D)	Orchid with Dark Eye	Med.	Sept. 10	6.00	11.50	11.25	11.00
Chippewa.....	(LD)	Purple	Med.	Sept. 15	3.50	6.50	6.25	6.00
Violet.....	(P)	Amaranth Pur.	Tall	Sept. 15	3.50	6.50	6.25	6.00
Achievement.....	(D)	Deep Salmon	Short	Sept. 20	3.25	6.00	5.75	5.50
Tapestry.....	(LD)	Bright Pink	Med.	Sept. 20	6.00	11.50	11.25	11.00
Heather Bloom.....	(D)	Heather Pink	Med.	Sept. 22	3.00	5.50	5.25	5.00
Olive Longland.....	(LD)	Apricot Salmon	Med.	Sept. 25	2.50	4.50	4.25	4.00





# CHRYSANTHEMUM CUTTINGS

## Garden or Hardy Chrysanthemums

Variety	Type	Color	Height	Blooming Date	Per 50	100 to 250	300 to 450	500 up
<b>Early Wonder</b> .....	(P)	Lavender	Tall	Sept. 25	\$3.00	\$5.70	\$5.40	\$5.10
<b>Spellbound</b> .....	(D)	Lavender	Med.	Sept. 25	3.00	5.70	5.40	5.10
<b>Capt. John Smith</b> .....	(D)	Pink	Short	Sept. 25	2.75	5.00	4.75	4.50
<b>Karl A. Reiche</b> .....	(D)	Old Rose	Med.	Sept. 25	3.25	6.00	5.75	5.50
<b>Pink Beauty</b> .....	(D)	Salmon Pink	Med.	Sept. 25	2.75	5.00	4.75	4.50
<b>Sept. Dawn</b> .....	(D)	Rose Pink	Med.	Sept. 25	3.25	6.00	5.75	5.50
<b>Rosita</b> .....	(B)	Persian Rose	Med.	Sept. 28	3.50	6.50	6.25	6.00
<b>Betty</b> .....	(LD)	Pk. Rose Ctr.	Tall	Sept. 28	3.25	6.00	5.75	5.50
<b>Patricia Lehman</b> .....	(D)	Peach Pink	Tall	Sept. 28	6.50	12.00	11.75	11.50
<b>Coral Sea</b> .....	(D)	Buff Rose	Short	Oct. 1	2.75	5.00	4.75	4.50
<b>Morning Glow</b> .....	(P)	Mauve Pink	Med.	Oct. 1	3.25	6.00	5.75	5.50
<b>Oriental</b> .....	(D)	Orchid	Med.	Oct. 1	2.75	5.00	4.75	4.50
<b>Tiffany Rose</b> .....	(D)	Deep Rose	Med.	Oct. 1	2.75	5.00	4.75	4.50
<b>Mrs. DuPont</b> .....	(LD)	Peach Pink	Tall	Oct. 5	3.00	5.50	5.25	5.00
<b>Argonne</b> .....	(P)	Amaranth Purple	Tall	Oct. 5	4.00	7.60	7.20	6.80
<b>Lavender Lady</b> .....	(D)	Pink	Tall	Oct. 5	3.50	6.50	6.25	6.00
<b>Mellow Glow</b> .....	(P)	Peach Pink	Tall	Oct. 5	3.50	6.50	6.25	6.00
<b>Joybringer</b> .....	(D)	Salmon Rose	Short	Oct. 10	5.00	9.50	9.00	8.50
<b>Elkton</b> .....	(P)	Lavender	Tall	Oct. 10	3.25	6.00	5.75	5.50
<b>Orchid Spoon</b> .....		Orchid	Short	Oct. 10	2.75	5.00	4.75	4.50
<b>Rose Spoon</b> .....		Rose Pink	Med.	Oct. 10	2.75	5.00	4.75	4.50
<b>Sweetheart</b> .....	(S)	Lavender	Tall	Oct. 10	5.00	9.50	9.00	8.50
<b>Serenade</b> .....	(S)	Magenta	Tall	Oct. 10	5.00	9.50	9.00	8.50
<b>Allegro</b> .....	(P)	Shrimp Pink	Tall	Oct. 15	3.00	5.70	5.40	5.10
<b>Adagio (New)</b> .....	(P)	Raspberry Rose	Tall	Oct. 15	5.00	9.50	9.00	8.50
<b>Dawn Rose</b> .....	(LD)	Medium Pink	Med.	Oct. 15	5.00	9.50	9.25	9.00
<b>Symphony</b> .....	(D)	Mauve & Lavender	Tall	Oct. 15	2.75	5.00	4.75	4.50
<b>Jewell</b> .....	(P)	Lavender	Med.	Oct. 15	3.00	5.70	5.40	5.10
<b>Dark Pink Jewell</b> .....	(P)	Dark Lavender	Med.	Oct. 15	3.00	5.70	5.40	5.10
<b>Fashion</b> .....	(D)	Salmon & Pink	Med.	Oct. 15	5.00	9.50	9.00	8.50
<b>Salute</b> .....	(S)	Orchid	Med.	Oct. 15	5.00	9.50	9.00	8.50

### COMBINATION OFFERS

For growers who are not familiar with Garden Varieties, but who want a well balanced assortment, we offer the following collections, which include the better varieties.

#### SPECIAL No. 1

500 Rooted cuttings  
Our selection  
50 each of ten taller  
varieties for cutting

**\$25.00**

#### SPECIAL No. 2

500 Rooted cuttings  
Our selection,  
for pots or bedding  
50 each ten varieties

**\$25.00**

#### SPECIAL No. 3

500 Rooted cuttings  
Our selection  
50 each of five  
varieties for  
cutting  
50 each of five  
varieties for  
bedding

**\$25.00**

### PRICE TABLE

Use this table to determine the price of 1000 or more cuttings of a variety for any one specific delivery date.

50 Per 50	100 - 250 per 100	300 - 450 per 100	500 - 950 per 100	1000 - 2450 per 100	2500 up per 100
\$2.25	\$4.25	\$4.00	\$3.80	\$3.60	\$3.35
2.50	4.75	4.50	4.25	4.00	3.75
2.75	5.20	4.95	4.65	4.40	4.15
3.00	5.70	5.40	5.10	4.80	4.50
3.50	6.65	6.30	5.95	5.60	5.25
4.00	7.60	7.20	6.80	6.40	6.00
5.00	9.50	9.00	8.50	8.00	7.50



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*Gloeckner  
Chrysanthemum  
Manual*

